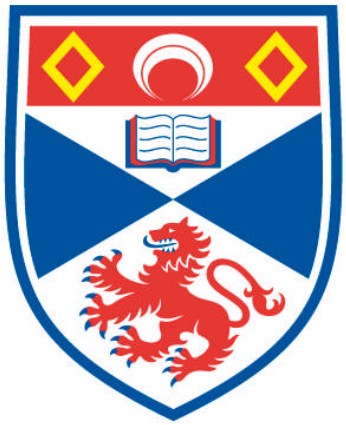
ETHNIC INEQUALITIES IN SOCIAL MOBILITY AT THE NEIGHBOURHOOD SCALE

EVIDENCE FROM THE OFFICE FOR NATIONAL STATISTICS LONGITUDINAL STUDY IN ENGLAND

Xiaoqi Feng

A Thesis Submitted for the Degree of PhD
at the
University of St Andrews



2012

Ethnic inequalities in social mobility at the neighbourhood scale

Evidence from the Office for National Statistics Longitudinal Study in England

Xiaoqi Feng, BA (Hons), MLitt

March 2012

A thesis submitted to the University of St Andrews for the Degree of Doctor of Philosophy

Department of Geography and Sustainable Development

School of Geography and Geosciences

University of St Andrews

St Andrews, Fife, United Kingdom

Declaration

1. Candidate's declarations: I, Xiaoqi Feng, hereby certify that this thesis, which is approximately 80,000 words in length, has been written by me, that it is the record of work carried out by me and that it has not been submitted in any previous application for a higher degree. I was admitted as a research student in September, 2006 and as a candidate for the degree of PhD in September, 2007; the higher study for which this is a record was carried out in the University of St Andrews between 2007 and 2011.

Date 19/Oct/2012 signature of candidate Fengxiaoqi Bo&Ld

2. Supervisor's declaration:

I hereby certify that the candidate has fulfilled the conditions of the Resolution and Regulations appropriate for the degree of PhD in the University of St Andrews and that the candidate is qualified to submit this thesis in application for that degree.

Date 19 October 2012 signature of supervisor Robin Flowerdew

3. Permission for electronic publication: (*to be signed by both candidate and supervisor*)

In submitting this thesis to the University of St Andrews I understand that I am giving permission for it to be made available for use in accordance with the regulations of the University Library for the time being in force, subject to any copyright vested in the work not being affected thereby. I also understand that the title and the abstract will be published, and that a copy of the work may be made and supplied to any bona fide library or research worker, that my thesis will be electronically accessible for personal or research use unless exempt by award of an embargo as requested below, and that the library has the right to migrate my thesis into new electronic forms as required to ensure continued access to the thesis. I have obtained any third-party copyright permissions that may be required in order to allow such access and migration, or have requested the appropriate embargo below.

The following is an agreed request by candidate and supervisor regarding the electronic publication of this thesis: Embargo on both [all] of printed copy and electronic copy for the same fixed period of 2 years on the following ground(s): publication would preclude future publication.

Date 19 Oct 2012 signature of candidate Fengxiaoqi Bo&Ld signature of supervisor Robin Flowerdew

Contents

I. Acknowledgements

Many people have helped, supported, and shown encouragement for my PhD studies at the University of St Andrews. The most important people have been my supervisors (and friends), Professor Robin Flowerdew and Dr Zhiqiang Feng. You were always very positive and constructive in discussing what areas of my research were good, and guiding me on what to do with parts that I could improve. Your supervision has been a major turning point in my academic career and life. I feel very privileged to have worked with you. I look forward to publishing the findings of my PhD with your continued support. Please keep in touch!

To my Father and Mother, who thought that their daughter would return to Beijing after a year in St Andrews upon completing her Master degree, but did not know that she would be away for many more years to study for PhD: I love you and thank you so much for always supporting me and my educational/career ambitions. I hope it won't be too long till we can live in the same city again.

I thank Zhiqiang and Jie, for their warm hospitality and generosity, especially during Chinese New Year and the Moon Festival. We have had some wonderful dinners together and you have been like family to me while I have been in St Andrews.

Many other people deserve to be acknowledged. Professor Paul Boyle, for permission to study for PhD and for advice on how to get the best out of the Office for National Statistics. Colin Cameron and Helen Olaez in the School for their support on IT and administration. Chris Marshall and his colleagues in London, for helping me to analyse the Longitudinal Study. Professor Maarten van Ham and Dr. Elspeth Graham for introducing me to the literature on neighbourhoods and social mobility. And Thomas, who has always been positive, supportive, encouraging, and has learned to make some nice Chinese food for me when I was writing up my thesis. ☺

The permission of the Office for National Statistics to use the Longitudinal Study (ONS LS) is gratefully acknowledged, as is the help provided by staff of the Centre for Longitudinal Study Information & User Support (CeLSIUS). CeLSIUS is supported by the ESRC Census of Population Programme (Award Ref: RES-348-25-0004). The author alone is responsible for the interpretation of the data. Census output is Crown copyright and is reproduced with the permission of the Controller of HMSO and the Queen's Printer for Scotland. In line with CeLSIUS protocol, all cell counts below 10 and related percentages have been blanked out in every table reporting ONS LS data to preserve the anonymity of sample members.

II. Abstract

Compared to their White peers, ethnic minorities in England are often at higher risk of becoming unemployed, unable to find employment, and more likely to experience downward, rather than upward social mobility. Qualifications, gender, age, marital status and migrant generation all play a role; but do not explain these ethnic inequalities, or *ethnic penalties.* Despite ethnic minorities being more likely to live in deprived neighbourhoods than Whites, research on ethnic inequalities in social mobility has rarely taken account of the role of context. Neighbourhood deprivation may reduce life-chances for various reasons, and the concentration of ethnic minorities into deprived neighbourhoods may have additional influences for social mobility: some positive, but also some negative. In this thesis, I ask: does neighbourhood deprivation and ethnic composition explain the ethnic inequalities in social mobility?

Using a longitudinal analysis of the Office for National Statistics Longitudinal Study, I tracked the intragenerational social mobility of people living in urban areas of England between 1991 and 2001. Binary and multinomial logit regression models were fit with ethnicity as an independent variable to explore statistical differences between groups, and also for the White, Indian and Black Caribbean groups separately. My research shows that after controlling for education, couple status, and a number of other important characteristics, geography does play a role in life-chances; but does not fully explain the ethnic inequalities in social mobility. People in more deprived neighbourhoods tended to fare worse in all economic outcomes: more at risk of unemployment; less likely to find employment; more at risk of downward social class mobility; less likely to experience upward social class mobility. However, these results were statistically significant only among White people, with less consistent associations for ethnic minorities. Ethnic diversity had a positive influence upon outcomes (e.g. upward social class mobility), but only among White people. Positive outcomes were also more common among people living in the south of England. Place of birth was less important for social mobility. For policymakers attempting to reduce the geographical inequalities of deprivation and affluence, dissolving residential concentrations of minorities alone is unlikely to reduce the gap in life chances between Whites and ethnic minorities. No evidence was found to support the pejorative stereotyping of so-called 'ethnically segregated' neighbourhoods, which are some of the most diverse in England and, on balance, appear to improve the life chances of White people.

III. List of Figures

IV. List of Tables

1. Introduction

1.1 Social Mobility

It is believed that a society characterised by openness and equality of opportunity will reward people according to their abilities, talents and efforts rather than on the basis of their social background (Wilkinson and Pickett, 2009). People who work hard should not be prevented from securing a job or achieving career advancement because of their ethnicity, gender, age or family characteristics (Breen and Jonsson, 2005). However, this 'meritocracy' does not appear to be the reality (Breen, 2004, Goldthorpe et al., 1987, Heath and McMahon, 2005, Heath and Cheung, 2007). Recent research (see Table 1-1) showed the UK positioned near the bottom of a league table of intergenerational social mobility, with UK-based adults being less likely to achieve higher incomes than their parents compared to those in countries like Canada, Germany, Sweden, Norway, Denmark and Finland (Blanden et al., 2004, 2005).

Table 1.1: International estimates of intergenerational social mobility (Blanden et al., 2005; adapted by the Author)

Panel 1		
Earlier Cohorts -	Fathers' Single-Year Earnings as Measure of Status - Two year average of son's earnings	
Country	Sons Born	Partial Correlation
US	1954-1970	.348 [3]
UK	1958	.260 [1]
W. Germany	1960-73	.180 [3]
Finland	1958-1960	.147 [1]
Sweden	1962	.143 [1]
Denmark	1960-1973	.143 [1]
Norway	1958	.139 [1]
Panel2		
Later Cohorts -	Parental Income Average as Measure of Status - Single Year Measure of son's earnings	
Country	Sons Born	Partial Correlation
US	1954-1970	.289 [2]
UK	1970	.271 [2]
W. Germany	1960-1973	.171 [2]
Canada	1967-1970	.143 [2]

Intergenerational social mobility in the UK may be declining according to Blanden et al (2005), but it would be incorrect to assume that this applies to all types of social mobility. The common definition of social mobility is a permanent movement between class or status boundaries; a long-lasting change in socioeconomic position (Giddens, 2009). However, there are different types of social mobility. Most of the research on social mobility has taken an 'intergenerational' approach, which is when comparisons are made in socioeconomic position between parent and child once grown up. Blanden et al's (2005) study is an example of intergenerational social mobility. Recently, the emergence of ideas known as the 'lifecourse approach' (Mayer, 2009) have increased interest in another type of social mobility. This is called 'intragenerational' social mobility (DiPrete, 2002). Intragenerational social mobility is the comparison of a current socioeconomic position to one held at an earlier stage of the lifecourse - not in comparison to the socioeconomic position of the parental generation.

Intergenerational and intragenerational social mobility can be absolute or relative. Absolute mobility measures whether an individual experiences a change in socioeconomic position in their lifecourse or in comparison to their parents (Blanden, 2008). However, it is possible for social mobility to occur without an absolute change in socioeconomic position. 'Relative social mobility', or 'social fluidity' as it is referred by some sociologists (Breen, 2004), is the name for this type of social mobility. For example, a person that has no absolute social mobility may become relatively worse off compared to their upwardly mobile peers (Bottero, 2005). However, identifying the determinants of social mobility as an absolute change in socioeconomic position experienced by an individual during their lifecourse is arguably of greater importance to policy which aims to improve the life-chances of people. This is the focus of my PhD thesis.

Unlike intergenerational social mobility where a permanent change in socioeconomic position is the focus, intragenerational social mobility may involve frequent changes in socioeconomic position at different points of the lifecourse. Early in the working lifecourse it is common for

people to work in a variety of jobs. Some of these jobs may be in different occupational classes, especially over time as people get more experience. For example, if we define social mobility as changes in occupationally-derived social class (i.e. 'occupational mobility'), we know that people in routine and manual labour occupations often move between jobs within that occupational class because of the short-term contractual nature of the work (Rose, 1998). With the accumulation of experience, moves are possible to jobs in an intermediate or middle supervisory class (i.e. upward social class mobility). Savage (1988) suggests that this upward mobility may occur via promotion to a higher rank within an organisation, or through moving to a more responsible and rewarding position within the profession (but not necessarily within the same company), or via an entrepreneurial route.

Intragenerational social mobility may be very common among people at a relatively early to middle stage of their career, particularly between low and middle occupational classes. In comparison, upward intragenerational social mobility may become increasingly less likely for people in higher socioeconomic positions. For those taking, in Savage's (1988) terms, 'organisational' or 'occupational' pathways, vacancies are known to be increasingly rare in companies based upon a common 'pyramid' structure, where there is less room at the top (Stewman and Konda, 1983). Meanwhile, although it is often the case that people will join a company to get experience, develop contacts, and nurture a client base before leaving to start their own companies, the risks associated with being an entrepreneur are likely to discourage many people who, over time, become institutionalised within a company structure. For all of these reasons, it is likely to be more difficult to move from intermediate to managerial occupations than to move from manual to intermediate positions. It may also be that moves from manual occupations direct to the managerial class are even less likely, due to competition with people who are already in intermediate occupations.

Therefore, a more settled, permanent occupational class is only thought to be achieved by the mid-30s, which is when intergenerational comparisons are often made (Goldthorpe and Jackson, 2007). However, this does not take account of the possibility of downward intragenerational social mobility. As Mayer and Carroll (1987) noted, it is often the case that 'occupational degradation' will occur towards the late stage of the working lifecourse. This highlights the likelihood of a non-linear association between age and social mobility, with rapid upward mobility occurring early on, and downward mobility occurring later in the lifecourse.

The traditional notion that social mobility involves a permanent change in socioeconomic position also does not take account of people moving in and out of the labour market. Labour market transitions have been used by geographers, sociologists and economists to define intragenerational social mobility in many previous studies. For example, Musterd and colleagues studies of social mobility in the Netherlands (2003) and in Sweden (2006) showed that the risk of losing a job and the likelihood of finding employment varies significantly by where an individual lives. This is important, since these studies are showing that the likelihood of being employed is not random. As most studies of social mobility use measures of socioeconomic position derived from occupations, people who are not employed are often proxied by an employed marital partner or omitted from the analysis, as has been the case historically for women (Payne and Abbott, 1990). In other words, studies of social mobility which only investigate changes in occupational class focus upon highly selected populations (i.e. employed) and often ignore a significant proportion of the working age population. Social mobility into and out of employment (i.e. labour market transitions) matters too, especially within the context of the lifecourse approach.

Previous research has suggested that there are ethnic inequalities in social mobility. This is the focus of the next section in this chapter.

1.2 Ethnic Inequalities in Social Mobility

For some ethnic minority adults in the UK, the likelihood of achieving upward social mobility is significantly less than the White UK-born population. Many determinants of social mobility have been identified, such as family background, age, gender and educational qualifications (Breen, 1997, 2004, Breen and Goldthorpe, 2001, Breen and Jonsson, 2005, Goldthorpe et al., 1987, Goldthorpe and Jackson, 2007, Goldthorpe and Mills, 2008, Erikson and Goldthorpe, 2010, Payne and Abbott, 1990). However, these factors do not fully explain ethnic inequalities in social mobility (Heath et al., 2000b, 2008a, Heath and Smith, 2003, Heath and McMahon, 2005, Li and Heath, 2008, Modood et al., 1997, Platt, 2005, 2007). The persisting ethnic inequalities have been labelled 'ethnic penalties' (Heath and Cheung, 2007, Carmichael and Woods, 2000, Simpson et al., 2009, Berthoud, 2000).

In beginning to understand ethnic inequalities in social mobility, it is important to have a good knowledge of the history of immigration. A defining characteristic of UK demography has been the rapid increase in its overseas-born population since World War II (Rees and Butt, 2004, Vertovec, 2007). Mass immigration to the UK from the Caribbean, India and Pakistan was supported by direct recruitment programmes to fill labour shortages in the UK (Peach, 1968, Robinson, 1980). The number of economic immigrants to the UK reduced significantly after the Government tightened entry requirements in 1962. However, there have been recent waves of economic immigrants from Central and East Europe (EU Accession countries e.g. Poland), and of refugees, often from African countries (Champion, 1994, Pemberton, 2009, Stenning and Dawley, 2009, Peach, 2006).

Migrants were mostly young men, though many women and entire families also later travelled to the UK (Phillips, 1998). The early Government-sponsored immigration of the 1950s and 1960s

was used to fill lower-level manual occupations, which the UK-born (mainly White) population did not want to do (Peach, 2007). These jobs were characterised by low pay, poor working conditions, long night-shifts, and no job control or security (Castles and Kosack, 1973, Miles, 1982). The immigrant groups were deemed as a temporary replacement labour force and denied access to housing and other sectors of the labour market (Phillips, 1998, Peach, 1997). These circumstances reduced immigrants' choice of jobs. Low wages also meant that their choice of neighbourhoods was limited to those which were cheap, with poor reputations and characterised by overcrowded housing and lack of amenities (Peach, 1968,1996b, 1998, 2006a).

However, it is important to consider that not all immigrants in England had the same social and economic characteristics. Many people from the Caribbean, India and Pakistan immigrated to the UK in the 1950s and 1960s for economic reasons, but with different levels of economic success after arriving in the UK. Immigrants from the Caribbean were mostly English-speaking and employed in service industries (e.g. transport, health), living in and around the cities of London and Birmingham (Peach, 1997). They were often Christian, raised in a British-style education system, and their social and economic experience in the UK has been suggested to be 'assimilated' to the mainstream White population (Peach, 2007). This is reflected in the residential dispersal over time and high rates of mixed ethnic marriages and unions between people of Caribbean ancestry and UK-born Whites (Feng et al., 2010). For example, Peach (2005) reports data from the 1991 census that suggests 27% of Caribbean men and over 50% of Black 'Other' (people who were 'Black' ethnicity, but not in the Black Caribbean or Black African groups) men were married or cohabiting with a White partner. Similarly high rates were found for Black 'Other' women married or cohabiting with a White man at 44%. However, economic success for Caribbean immigrants is strongly related to gender. Although Caribbean women have experienced some economic success (Hylton, 1999, Lam and Smith, 2009, Reynolds, 2001), high

rates of unemployment continue for Caribbean men (Fieldhouse and Gould, 1998, Reynolds, 2001, Simpson et al., 2009).

In comparison, some South Asian immigrants (Indians especially) have been described as experiencing 'assimilation' economically, but not socially (Peach, 2007). This refers to their varying levels of economic success in the UK, but social isolation from other ethnic groups. In comparison to their Indian peers, Pakistani and Bangladeshi immigrants have achieved less economic success, and remain residentially concentrated in towns and cities in the Midlands (e.g. Birmingham) and the North (e.g. Leeds and Bradford) (Peach, 1968,1998). As 1st generation immigrant Pakistanis were mostly non-English speaking, they were often concentrated into manual labour occupations that did not require significant levels of communication (e.g. textile factories). However, the decline of manufacturing and reduction in welfare during the 1980s increased unemployment rates and the concentration of deprivation among these groups of immigrants who had few qualifications and were originally farmers (Peach, 2007).

Immigrants from Bangladesh arrived later than those from Pakistan, but were also very poor and tended to concentrate residentially in London, especially in the economically deprived east London Borough of Tower Hamlets (Khattab et al., 2010). Among Pakistanis and Bangladeshis, it is important to note their strong 'Biraderi' (extended family ties) and the high prevalence of the Muslim religion, which through 'Purdah' (the prevention of men seeing women, physically and with items of clothing) places restrictions on women's participation in the labour market (Peach 1998, 2006, 2007). Single-income households where people were concentrated in low skilled, wage labour meant that families had little choice but to locate in deprived neighbourhoods which were more affordable. Some studies have also suggested that Pakistanis and Bangladeshis (and other non-White ethnic groups) may also have been discriminated against in the housing market, leading to residential concentration in poor, less desirable places (Phillips, 1998, van Ham and Manley, 2009, Henderson and Karn, 1984, 1987, Malpass and Murie, 1994). Unlike Caribbean

immigrants, the geographical concentrations of Pakistanis and Bangladeshis has remained high, due to the strength of local family ties, the importance of mosques and gurdwaras (both are places of worship), and high fertility rates (Peach, 1997, 2007, 2009, Finney and Simpson, 2009b, Simpson and Finney, 2009, Peach and Gale, 2003).

On the other hand, the Indian population was on average well-educated and often from high skilled and professional backgrounds (e.g. academics and doctors) which helped economic integration, despite the close family ties within their own ethnic group (Peach, 2007). Like the Caribbeans, the Indian population was residentially concentrated in towns and cities of the south of England with closer proximity to London than their Pakistani and Bangladeshi peers. It is important to note that about 30% of Indian immigrants were refugees from East Africa in the 1960s and 1970s. This group were middle class, English-speaking, highly educated and economically successful in East Africa, which helped entrepreneurship and economic integration upon arriving in the UK. In comparison, recent refugees, from countries like Bosnia, Kosovo, Afghanistan, Somalia, Turkey and Iraq during the 1990s, were composed of far more vulnerable and disadvantaged asylum-seeking groups (Peach, 2006b).

Evidence shows clear ethnic inequalities in economic activity. For example, Heath et al (2000) showed immigrant men and women in Black Caribbean, Indian, Pakistani and Bangladeshi ethnic groups were more likely to be unemployed than White men and women in the Sample of Anonymised Records from the 2001 census and also the Labour Force Survey of England. Similarly, men and women from the same ethnic minority groups, if employed, were less likely to have professional or managerial occupations than UK-born White people. This was not universally the case, however, as these studies showed Chinese people were not significantly different to their White peers in their likelihood of economic success.

Heath et al (2000) study highlighted ethnic inequalities in socioeconomic position at one time point. However, this is not social mobility, which is the upward or downward change in socioeconomic position between at least two time points. Heath and Smith (2003) followed this up by using the General Household Study (GHS) to investigate ethnic inequalities in social mobility, as defined by transitions in economic activity. Heath and Smith first examined the net proportion of the group that moved from one socioeconomic position to another (i.e. percentage upwardly mobile minus the percentage downwardly mobile). They found increasing absolute levels of employment for every ethnic group, except for Pakistani immigrants between 1985 and 1992. Heath and Smith then examined the level of social mobility between groups, reporting that unemployed Indian, Pakistani and Bangladeshi men were all significantly less likely to find employment than UK-born White men. Similarly, employed immigrant Caribbean, Indian, Pakistani and Bangladeshi men were all more likely to become unemployed compared to UK-born White men. In a follow-up study of the same data, Heath and McMahon (2005) showed immigrant Indian and Pakistani women had more downward absolute social mobility than UK-born White women.

All of these analyses were for men and women born overseas. But with over 50 years since the first major waves of immigration after World War II, many people in ethnic minority groups in England were born in the UK (Peach, 2007, Aspinall, 2000, Stillwell and Phillips, 2006). The children of immigrant groups are often referred to as the 'second generation', although those who were born overseas but grew up from a young age in the host country are also sometimes labelled separately as the 1.5 generation (Zhou, 1997). It is thought that UK schooling and qualifications, language fluency and long-term adaptation are advantages which should translate into better chances of economic success for the second or 1.5 generation compared to their parents, the first generation immigrants. However, this is not always what has been found (Heath and Cheung, 2007, Heath et al., 2008a).

For example, Heath et al showed that second generation Black Caribbean, Indian and Pakistani men and women were more likely to be unemployed than UK-born White people. This was the same pattern as for first generation immigrants of the same ethnic groups (Heath et al., 2000b). Furthermore, using the General Household Survey to measure relative social mobility, Heath and Smith showed that the risk of employed second generation Caribbean and Indian men becoming unemployed was significantly higher compared to UK-born White men (Heath and Smith, 2003).

Ethnic inequalities in social mobility have also been reported inter-generationally (the likelihood of a person achieving a different socioeconomic position compared to their parents (Blanden, 2008)). Using the Office for National Statistics Longitudinal Study (ONS LS), Platt showed Caribbean people were significantly less likely to achieve upward intergenerational social mobility between 1971 and 1991 than White people (Platt, 2005). A follow-up study using the ONS LS by Platt showed that although many ethnic minorities gained educational qualifications between 1991 and 2001, they were still less likely to achieve upward intergenerational social mobility compared to UK-born White people (Platt, 2007).

Therefore, three important observations can be made from the evidence presented so far. First, ethnic inequalities in social mobility are not explained by whether a person is born in England or overseas, as immigrant and second generation ethnic minorities were both worse off compared with UK-born White people. Furthermore, not all ethnic minority groups are equally disadvantaged. The Chinese and Indian groups have shown to have a greater level of economic success compared to Pakistani and Bangladeshi groups (Peach, 2007). Second, these ethnic inequalities have been reported in studies of socioeconomic position (Heath et al., 2000b), and also in different types of social mobility (Heath and McMahon, 2005, Platt, 2005, 2007). However, ethnic inequalities in intra-generational social mobility have been ignored. This is a significant gap in the literature. Intra-generational social mobility is a measure of how people are

doing compared to when they were younger, which may be a more important reference point than in comparison to how their parents did (inter-generational social mobility).

Third, the studies I referenced had controlled for many other factors which are understood to be important for social mobility. Education is a very important factor, and a lack of qualifications recognised by the host country among the immigrant groups has been hypothesised to explain the ethnic inequalities. However, studies like Heath et al (2000) have shown that ethnic inequalities are not fully explained by education. Similarly, Platt (2007) showed that education made little difference to the chances for intergenerational social mobility among Pakistani and Bangladeshi people compared to UK-born Whites with the same qualifications. In addition to immigrant status and education, these ethnic inequalities also persisted after controlling for gender, age, marital status and family background (Heath et al., 2000b, 2008a, Platt, 2005, 2007).

Therefore, the key to understanding the drivers of ethnic inequalities in social mobility is to identify alternative explanations, and other factors which have not been considered so far by previous studies. Many studies of social mobility have investigated what factors are associated with whether a person is socially mobile or not (e.g. Goldthorpe and Mills, 2008, Heath and Cheung, 2007, Breen and Goldthorpe, 2001, Blanden et al., 2006). Most of these studies highlight particular characteristics of individual people as important factors. Here, I summarise some of the main findings so far.

1.3 Factors Influencing Social Mobility

Before a person reaches adulthood, their chances of being socially mobile are likely to have been influenced by experiences in childhood. Family background accounts for many of these factors

(Blanden, 2008, Gutman and Feinstein, 2010, Hughes and Cooke, 2007, Waldfogel, 2004, Duncan et al., 1998). For example, it is well known in the UK that affluent families are likely to select neighbourhoods within the catchment areas of high-performing schools (Burgess and Briggs, 2010, Gibbons and Telhaj, 2007). This drives up housing prices, which means children from poorer families cannot afford to live in the catchment area of high-performing schools and have little choice but to attend one with a poorer reputation. Children from affluent families are also likely to afford private tuition, better equipment and to take part in more extra-curricular activities that enhance their early life experiences (Esping-Andersen, 2004, Sullivan and Whitty, 2005). These experiences provide children from affluent families with positive role models, social and intellectual capital, and aspirations for social mobility in adulthood (Ermisch and Francesconi, 2001). In some cases, the networks (or 'weak ties') made during school and higher education can also play a significant role in determining social mobility in adulthood (Granovetter, 1973).

In comparison, children growing up in poorer families and attending less prestigious schools are likely to be more exposed to a different set of attitudes, which may discourage higher education and upward social mobility (Reay, 2004, 2006, Connor, 2001). Children in poorer families are also more often exposed to stressful events such as parental divorce and financial difficulties, which may have impacts on their behavioural and cognitive development and completion of their education (Margo and Dixon, 2006, Rowlingson and McKay, 2005, Weitoft et al., 2004, Amato, 2000, Crane, 1991).

Education has also been shown to be important for social mobility, when socioeconomic position is measured by occupational social class (Breen, 1997, Breen and Goldthorpe, 2001, Breen and Jonsson, 2005, Platt, 2007), and also by income (Blanden et al., 2006, Blanden., 2006). Educational qualifications are often among the criteria for applying to higher-status jobs through formal pathways (Ioannides and Loury, 2004), although it should be acknowledged that

occupational achievement does not necessarily correlate perfectly with social mobility. For example, it is possible for a person to increase their income but not change occupational class (Gorard, 2008).

The importance of education explains why many more people have continued in higher education at University level in the last 20 years in England (Goldthorpe and Jackson, 2007). However, despite more people obtaining higher standards of qualifications in recent years, this has not guaranteed that every University graduate would achieve upward social mobility (Goldthorpe and Mills, 2008). According to various researchers, the returns on investment in education have fallen over time (Breen, 2004, Jackson et al., 2007). Many qualified individuals have not experienced upward social mobility, but a state of 'over-qualification' (Green and McIntosh, 2007). For example, a person with a university degree engaged in a type of employment that does not require higher education may be considered over-qualified.

Besides family background and educational qualifications, other factors are also likely to influence social mobility. An important characteristic of the literature has been the focus on men, and the exclusion of women from analyses of social mobility (Payne and Abbott, 1990, Goldthorpe and Payne, 1986). This was the case on Glass's early investigation (Glass, 1963), and was still the case in Blanden et al (2005) recent study. Women were originally excluded from studies of social mobility because they were not considered to be a significant part of the labour force (Goldthorpe and Payne, 1986). Women were often assumed to share the same socioeconomic position as their marital partner (Goldthorpe and Hope, 1974, Goldthorpe and Payne, 1986, Goldthorpe et al., 1987). This excludes single women and devalues the labour of those who were actually in employment.

Despite the previous omission of women, gender inequalities in social mobility are becoming increasingly well-documented (Payne, 2007, Payne and Abbott, 1990, Payne and Roberts, 2002).

The reality is that men's and women's participation in the labour market are both important to consider. Studies have shown that there is a gendered segregation of particular jobs in the labour market (Payne and Abbott, 1990). However, with some women increasingly seeking better paid types of employment traditionally dominated by men (e.g. finance and management), this creates more competition for those jobs (Reskin and Roos, 1990). Meanwhile, time spent out of the labour market for reasons related to household labour, childbirth and child-rearing is often suggested to reduce women's social mobility in comparison to men (Waldfogel, 1998, Cooke et al., 2009). As childbirth and rearing is strongly related to age, it is likely that the chance of achieving social mobility varies between men and women at different time periods in their lives. Furthermore, age-discrimination in the labour market is also known to have a gendered effect on opportunities for social mobility (Duncan and Loretto, 2004), resulting in the segregation of women into low-paid employment such as nursing or secretarial work (England et al., 2007). Therefore, although married women were once thought to share the same social mobility as their partners, this assumption has long been rejected (Payne and Abbott, 1990, Erikson, 1984).

Different trajectories in social mobility are possible between men and women who live in the same household and this is illustrated by research on job-related migration in the UK, USA and the Netherlands (Boyle et al., 1999, 2003, 2009, Cooke et al., 2001, 2009, Mulder and van Ham, 2005, van Ham, 2001). When looking for jobs, people who have the flexibility to search over a wider geographical area are likely to benefit from a greater range of opportunities than those who restrict themselves to the local area only. Those who accept the compromise of moving or commuting over long distances increase their competitiveness, which can accelerate career trajectories through increased incomes and higher status jobs (van Ham, 2001, Mulder and van Ham, 2005).

However, in reality this is not always the case. For example, there are gender differences in the association between social mobility and spatial mobility. In the Netherlands, van Ham reports

that men who accept jobs over long distances make faster career advancement compared to those who took jobs more locally to where they lived. For women, there was no positive effect of migration on their own social mobility unless the move was specifically for their own career (van Ham, 2001). Although the opposite (men following women's migration for jobs) was not investigated in these studies, it is possible that the reverse is also true. Other studies have also reported positive effects of migration on the social mobility of men (Bonney and Love, 1991, Smits, 2001). However, another study suggested that women only benefit after multiple moves (Mulder and van Ham, 2005). Meanwhile, Boyle et al reported in several studies that women who move with a partner often suffer downward social mobility in the labour market (Boyle et al., 1999, 2003, 2009, Cooke et al., 2001, 2009). Therefore, the association between social and spatial mobility is likely to vary between men and women.

Social mobility may not only be related to how far a person is willing to move and commute from their residence, but it could also be associated with the constraints which limit whether a person can move for social mobility. Couple status is one of those constraints, with single people being more able to move to take up opportunities for social mobility than those who share a household with family members. Family composition is also important, for example, if there are dependents to look after this may restrict the hours in a day which a person can work, the acceptability of particular types of jobs and the duration of commuting. Household tenure is another constraint on social mobility. Private renters of households are usually committed to short-term contracts, which gives them flexibility and spatially mobility to be able to react to job-related opportunities. In comparison, homeowners are often tied into long-term mortgage contracts, and the selling of property is a time-consuming and expensive process, both of which means that people who own homes must plan ahead as they are less able to react to new job information as fast as private renters. Meanwhile, social housing renters are often economically disadvantaged and cannot

afford to purchase property or rent in the private sector, limiting their ability to search for jobs over long distances (Clark and Huang, 2003).

Although immigrant status, family background, educational qualifications, age, gender, couple status, household mobility and tenure have all been considered, ethnic minorities remain persistently disadvantaged compared to UK-born Whites (Heath and Cheung, 2007). However, it is important to consider that people do not only differ by individual characteristics. The experiences and life-chances of immigrants and their children are also likely to have differed by geographic patterns of settlement (Peach, 2007).

As mentioned earlier, ethnic minorities are more likely to live in deprived neighbourhoods than UK-born Whites (Phillips, 1998). They have been residentially concentrated into urban neighbourhoods, especially in London and other cities like Birmingham, Manchester and Bradford (Rees and Butt, 2004). However, unlike in some areas of the USA, these ethnic minority concentrated neighbourhoods are usually the most ethnically diverse within the UK (Simpson and Finney, 2009). These geographical differences may play important roles in the adaptation and socioeconomic integration of ethnic groups (Zhou, 1997). Furthermore, many theories have been developed through trying to understand why where people live may be important for people's life chances. From Wilson's 'social isolation' to Portes' 'ethnic enclave' and Putnam's 'constrict' hypotheses (Wilson, 1987, Portes and Manning, 2005, Putnam, 2007), neighbourhoods have been suggested to play an important role in people's lives.

However, it is surprising that most studies of ethnic inequalities in social mobility have not given sufficient consideration to neighbourhood characteristics, especially deprivation, as an explanation for the ethnic penalties. Neighbourhoods may play a key role in determining ethnic inequalities in social mobility in England. However, there has been little research in this context. Some academics, politicians and policymakers suggest that neighbourhood deprivation and ethnic

residential concentration may affect life-chances, but often with little evidence (see Cheshire, 2007). Therefore, it is important to investigate whether ethnic inequalities in social mobility are linked to neighbourhood characteristics (Friedrichs et al., 2003, Musterd, 2005, Finney and Simpson, 2009b, Peach, 1996b, Phillips, 1998, 2006, Cheshire, 2007). This is the aim of my thesis.

2. Are ethnic inequalities in social mobility linked to neighbourhood characteristics? A review of potential mechanisms and evidence

2.1 Introduction

Studies of the ethnic minority disadvantage, or 'ethnic penalties', in social mobility in England have often investigated individual and household characteristics as possible explanations (e.g. Heath and Cheung, 2007, Platt, 2007). Meanwhile, a substantial 'neighbourhood effects' literature has rapidly developed since the 1980s and, in particular, has focussed upon identifying associations between neighbourhood deprivation, ethnic segregation and social mobility (e.g. Sampson, 2002). However, the potential influences of neighbourhood deprivation and ethnic segregation on ethnic inequalities in social mobility have rarely been considered empirically in the UK. This is surprising given the widespread belief that where people live is important for determining their life-chances (Atkinson & Kintrea, 2001, Buck, 2001, Dietz, 2002, Jencks and Mayer, 1990, Wilson, 1987).

This chapter is organised into five sections. First, I define what is meant by the term 'neighbourhood'. Second, I explore mechanisms linking neighbourhoods with social mobility and outline hypotheses on why neighbourhoods may potentially determine the ethnic inequalities observed in previous studies. Third, I summarise some of the main challenges of investigating neighbourhood effects (these are discussed more extensively in the Data and Method chapter). Fourth, I outline the evidence on the relationship between neighbourhood characteristics and ethnic inequalities in social mobility, by focusing attention on how each study coped with the

challenges summarised in section two. Fifth, I summarise what has been found so far and discuss where better evidence is needed.

2.2 Defining 'neighbourhood'

Before I explore mechanisms linking neighbourhoods with social mobility and outline hypotheses on why neighbourhoods may potentially determine the ethnic inequalities observed in previous studies, I must first explain what is meant by the term 'neighbourhood'.

The neighbourhood is the place at which many of the local processes thought to influence a person, such as peer and role model effects, social norms, social networking, relative deprivation, discrimination and violence. These processes do not only take place in neighbourhoods and people can experience them in other locations too, such as their workplace. However, the neighbourhood has special meaning, as reflected by the huge literature dedicated to it. Within the literature that focuses on neighbourhoods, there is often considerable disagreement, even in terms of *what is neighbourhood?* It is not my intention to list exhaustive definitions, nor to debate the merits and drawbacks of all of them, which has been well documented elsewhere (Galster, 2001, Kearns and Parkinson, 2001, Forrest and Kearns, 2001). However, it is important to note that despite its widespread use in academic and non-academic literature, an exact definition of 'neighbourhood' is difficult to identify. For example, neighbourhoods could be identified by tangible, physical and subjectively meaningful areas; typically those which have already been named. For example, the Local Authority Districts in England, such as Tower Hamlets or Kensington and Chelsea in London. However, just because the Government uses these areas to

allocate resources does not mean that the people who live there identify with them as their neighbourhoods.

This is because the tangible, named areas are not necessarily relevant to every kind of neighbourhood effect, as some researchers have argued that the interaction between people within a local area is unlikely to be confined to these physical boundaries (Warren, 1981, Hallman, 1984, Downs, 1981, Flowerdew et al., 2008). Although the previous examples of named boundaries may be a relevant scale for some types of neighbourhood effects, in fact, they may also be large enough to contain lots of smaller neighbourhoods that affect their residents in other ways. In other words, scale is an important part of defining what neighbourhood is. For example, smaller neighbourhood definitions may be more appropriate for investigating theories related to social norms and social networks, but larger boundaries may be more relevant if area reputation and local labour markets are the key issue (Andersson and Musterd, 2010). Therefore, if large boundary definitions are the focus of an analysis, these boundaries may actually hide relevant processes occurring in just one small part of the larger area. For example, research has suggested that areas of deprivation at very local levels can be hidden if larger neighbourhood definitions are used (Exeter et al., 2008, Haynes and Gale, 2000). Large geographical scales can result in a mis-representation of the conditions in which an individual lives, potentially suggesting they live in a more affluent neighbourhood than they really do (and vice-versa). This suggests that the choice of geographical scale used to define neighbourhoods is highly important for the hypothesised mechanism, and that choosing contrasting scales could potentially lead to substantively different conclusions (Openshaw and Taylor, 1981).

So if named geographical areas are not always a best fit for defining neighbourhoods, what other options are there? Perhaps neighbourhoods could be defined by the geographical extent of social interactions. Such interactions are likely to be dependent upon what opportunities people can access or interact with locally. For example, this could be the presence of other people locally to

meet. The spatial extent of an opportunity structure is likely to vary from person to person, and possibly also in different parts of the country (e.g. urban versus rural). For example, residents in remote and rural areas may interact most regularly with others who live many miles away. However, the large distance/area between them would probably not be classified as 'neighbourhood' in many people's imaginations. In less remote rural communities in villages and small towns, social interactions may be concentrated within those small geographical areas. On the other hand, people who live in cities may not necessarily feel it necessary to interact regularly with their neighbours, as the opportunities for meeting others who live in different parts of the city are relatively easy due to better transport networks. Overcoming distance is important for social interactions in more geographically spread-out rural communities, which makes car ownership a necessity. In comparison, in more highly urbanised parts of the country where public transport infrastructure is frequent and people tend to live closer to each other, opportunities to meet with specific people are likely to be more common.

Assuming that social interactions define neighbourhoods is not straightforward and it is difficult to practice in quantitative research. This has been acknowledged by many researchers and some have taken a more pragmatic approach by focusing on a measure of scale, rather than on social interactions. Morris and Hess, for example, defined neighbourhoods based upon a space within a reasonably easy walking distance from a household (Morris and Hess, 1975). However, this approach is not without problems as it is likely to depend quite a lot on the age and spatial mobility of a person, the local topography of the area (flat or hilly), and other factors which makes this approach less straightforward. As a result, examples of studies that have used customised definitions of neighbourhoods are quite rare. Even in those studies that do create neighbourhood definitions which are supposed to be more conceptually relevant to the processes of interest (e.g. Bolster et al., 2007, Propper et al., 2007, Andersson and Musterd, 2010, Galster et al., 2009, 2010), the basic data used to build customised neighbourhoods is often still a set of

geographical boundaries that were never intended to measure neighbourhood (Morphet, 1993). In summary, there remains no widely agreed definition of neighbourhood conceptually, nor is there a way of measuring neighbourhood which achieves consensus.

Overall, it seems that most social scientists have adopted definitions of neighbourhoods based upon some form of ready-made physical or named administrative boundary data that was not created to reflect social interactions (Dietz, 2002). Until recently, administrative boundaries were identified on paper maps. Now, it is more common to use digital boundaries created with Geographic Information Systems (GIS) and easily accessed by researchers 'off the shelf' (Martin, 2000). These digitised zones are often created for purposes unrelated to some type of neighbourhood concept involving the social interactions of people within an area. Examples include postcode areas, used for the delivery of mail, or local authority districts for the management of services (e.g. refuse collection). The key with using digital boundary data, according to Galster and others (Galster, 2001, Gephart, 1997), is for researchers to acknowledge that they are unlikely to find a set of boundaries that perfectly reflects the process of interest. However, some sets of boundaries and geographical scales are likely to be a better approximation of the relevant hypothesised mechanism of neighbourhood effect than others. Unless the ultimate objective of the research is to create a bespoke definition of 'neighbourhood', which is not the case in my study, we are usually limited to using the best data available at the time with acknowledgement of the limitations.

2.3 Potential mechanisms linking neighbourhoods to ethnic inequalities in social mobility

Neighbourhood characteristics have been hypothesised to have influences on a variety of outcomes. Some examples include: labour market outcomes (Musterd and Andersson, 2006, van Ham and Manley, 2010); voting (Jones et al., 1992); social capital (Johnston et al., 2005b, Ioannides and Loury, 2004); human capital accumulation (Entwisle et al., 1994, Garner and Raudenbush, 1991, Leventhal and Brooks-Gunn, 2004); school drop-out (Crane, 1991); crime (Kling et al., 2005, Sampson et al., 1997); and health (Leventhal and Brooks-Gunn, 2000, Diez Roux et al., 2001).

Although interest in this type of research dates back to the Chicago School of Sociology in the early 20th century (Sampson et al., 2002), the majority of studies on neighbourhood effects is more recent. Many commentators reference William Julius Wilson's *'The Truly Disadvantaged'* (Wilson, 1987) as the key study that inspired much of the research since (Dietz, 2002, Friedrichs et al., 2003, Ellen and Turner, 1997, Brooks-Gunn et al., 1997, Sampson, 2008, Kling et al., 2008). In this section of the chapter, I will investigate theories of neighbourhood effects specifically related to economic status, and draw ideas together to hypothesise why differences in neighbourhood characteristics may explain ethnic inequalities in social mobility.

Various classifications have been used to understand the ways in which neighbourhoods have been hypothesised to influence people's life chances. One popular classification was proposed by Manski, which divides mechanisms into three categories: i) "endogenous"; ii) "correlated"; iii) "exogenous" (Manski, 1993, 2000). Endogenous neighbourhood characteristics refer to the behaviours and attitudes of residents within a neighbourhood, which are thought to influence an individual in some manner. Endogenous effects range from local social networks and norms, to

experiences of violence and discrimination (Galster, 2008). Endogenous effects can be selective (e.g. specific age, gender or ethnic groups). In comparison, a correlated neighbourhood effect is hypothesised to influence everyone who is exposed. Examples of correlated effects may include neighbourhood reputation (Atkinson and Kintrea, 2001a, Permentier et al., 2007) and spatial mismatch (Ihlanfeldt and Sjoquist, 1998, Kain, 1992, 1968). Unlike the above two types of neighbourhood effect, exogenous characteristics are those in reference to descriptive features of the persons within a neighbourhood which influence other residents attitudes and behaviour (Galster, 2008). Unlike correlated effects, exogeneous effects do not necessarily influence all residents in the same way. Examples include the ethnic and religious composition of local populations, which may influence whether some people want to move in or out of neighbourhoods (Frey and Liaw, 1998, Crowder, 2000, Clark, 1991, Schelling, 1971).

Many theories of neighbourhood effects have focused on endogenous effects, as reflected in numerous reviews of the literature (Dietz, 2002, Durlauf, 2004, Friedrichs et al., 2003, Leventhal and Brooks-Gunn, 2000). Socialisation appears to be one of the most popular mechanisms hypothesised to link neighbourhoods with life chances. Galster (2008) explains that socialisation is when the behaviours and attitudes of all individuals may be changed by contact with role models or peers who live in the same neighbourhood. For example, a dominant attitude towards keeping streets clean and free of trash might encourage new residents to the neighbourhood to adopt the social norm of this behaviour.

Socialisation may act in a non-linear way, only having an effect once a minimum level has been reached. For example, it may need over half of the residents in the neighbourhood to encourage more people to keep the streets clean of trash. If less than half the residents demonstrate this behaviour, this non-linear type of effect means this behaviour is likely to remain a minority in the neighbourhood. Socialisation may also be selective, with the attitudes and behaviours influencing on people with certain characteristics, for example within age, gender and ethnic groups. For

example, the social norm of keeping streets clean may be observed more by older people, but less among children and youth. Socialisation was an important part of Wilson's thesis on the persistence of poverty among segregated Black Americans in inner city Chicago. A popular example originates from psychology on the conceptualisation of 'peer groups' or 'role models' (Brown et al., 1986, Brown, 1990). Peer group and role model influences could be positive, such as providing inspiration to seek higher education, or negative, such as the risk of dropping out of school (Crane, 1991). These theories broadly suggest that the behaviour of an individual is not independent of other (possibly selected) persons that they: a) might interact with; or b) look up to for recognition or guidance on some form of perceived social norm.

Some have said that young people who lack exposure to good role models are at an increased risk of normalising negative (e.g. violent) behaviour and unemployment, which creates an *'adversarial subculture'* characterised by withdrawal from values, norms and aspirations shared by mainstream society (Anderson, 1990, Fordham, 1996, Kohl, 1994, Portes and Zhou, 1993, Wilson, 1999). This can also increase exposure to crime and violence (Sampson and Raudenbush, 2004, Sampson et al., 1997, Wilson, 2003), reducing social trust (Gracia and Herrero, 2007, Ross et al., 2001), isolating individuals from opportunities for social and spatial mobility and leading to 'hyper-segregation' (Massey, 1990, Wacquant, 2005, Wilson, 1987).

Socialisation not only affects attitudes and behaviours between people within the same neighbourhood – it can also influence people between neighbourhoods too. For example, residents and their life-style choices can become stereotyped (in a more or less favourable way) by the reputation of the neighbourhood, city, region and country where they live (Forrest and Kearns, 2001, Permentier et al., 2007, Atkinson and Kintrea, 2001a). The 'culture of poverty' hypothesis implicitly suggested negative images and created unfavourable reputations for the residents of those 'problem neighbourhoods' in the public imagination (Blandy and Lister, 2005). It can potentially have harmful influences upon all residents of the neighbourhood (producing

correlated outcomes), such as more expensive home and car insurance premiums or postcode discrimination in employer hiring. This is called a 'stigmatisation effect' (Atkinson and Kintrea, 2001a, Farwick et al., 2002, Friedrichs, 1998, Friedrichs et al., 2003, Wacquant, 2005).

Stigmatisation is a commonly cited mechanism for 'ethnic penalties' (Carmichael and Woods, 2000, Berthoud, 2000, Modood et al., 1997, Simpson et al., 2009, Heath and Cheung, 2007). A combination of stigma related to ethnic minority identity and neighbourhood of residence may result in the discriminated group being paid less than the value of their labour (Becker, 1971). It may be that decisions on who to hire (or fire) have been made on the basis of prejudice or stereotyped characteristics, not on the abilities of the individual. Stigmatising practices may also be reflected in the widely reported trend for over-education among non-White ethnic groups (Lindley, 2009, Battu and Sloane, 2002). Non-White people are more likely than Whites to select into jobs with low salaries for which they are over-qualified. This is because they are often discriminated against in the workplace, or prevented from entry into jobs that better fit their qualifications (Waldinger, 1995, 1997, Waldinger et al., 1985, Rosen, 1959).

Promoting mixed tenure neighbourhoods in the UK and other European countries can be viewed as a policy designed to create more opportunities for disadvantaged people to meet others from more affluent positions in society, to relieve neighbourhoods of stigmatization, and to improve life chances among poorer residents (Cheshire, 2007, Friedrichs et al., 2003). However, there is little evidence available to suggest that such policy has been successful in the UK or overseas (Cheshire, 2007, van Ham and Manley, 2010, Bolster et al., 2007, Friedrichs et al., 2003, Ostendorf et al., 2001, Galster, 2007). In fact, there may be negative consequences of such policy which socialise and shape life chances through *relative deprivation* theory (Jencks and Mayer, 1990, Wilkinson and Pickett, 2009). Relative deprivation is the situation when one person sees something they want to have, but cannot obtain it (e.g. a famous sports car which they cannot afford). It is possible that more socially mixed neighbourhoods produce greater levels of stress

and anxiety, feelings of relative deprivation, and also greater competition for scarce public resources (Deaton, 2003, Knies et al., 2006).

In addition to socialisation, another widely researched endogenous effect is the role of social contacts and networks operating at the neighbourhood scale (Portes, 1998). In terms of economic status, for example, some research has reported that between 40-50% of jobs are obtained through social networks (Mouw, 2002). Because of high unemployment, a majority of lone parent families and often a large number of poor pensioner households, residents of more deprived areas often tend to spend more time in their local area compared with residents of more affluent neighbourhoods (Forrest and Kearns, 2001, Kearns and Parkinson, 2001, Sampson et al., 2002). Since poorer individuals also tend to have no educational qualifications, they are usually excluded from formal job information networks (such as advertisements in national newspapers which are often for high-status positions demanding experience and relevant qualifications) that are associated with social mobility (Ioannides and Loury, 2004) and spatial mobility (Dixon, 2003). Instead, there is a greater reliance upon informal job information networks (friends, relatives), which are often referred to as 'social ties' (Granovetter, 1985, 1973, Lin, 1999, 2001, Lin and Ensel, 1981, Lin et al., 1981).

Due to the constraints in their geographical mobility (e.g. because of a lack of financial or material resources), social ties for poorer individuals are more likely to be shaped by the social composition of the neighbourhood which they are exposed to, compared to more spatially mobile affluent individuals (Glaeser and Scheinkman, 2001, Glaeser et al., 2002). These social connections may be strong and help people to 'get by', such as offering sources of babysitting, informal money lending (i.e. a 'loan shark'), or gaining menial and temporary employment. Strong ties are the sort of networks which are often developed within families and between people with shared characteristics, such as ethnic group, gender, education and employment type (Lin, 2001). Consequently, because 'strong ties' are ties between people with similar

characteristics, these groups are likely to have access to the same informal job information networks, and may also be in competition for the same jobs. However, these strong ties are unlikely to be enough for individuals to become socially mobile from less favourable socioeconomic positions and 'to get ahead' out of poverty (Portes, 1998, Portes and Landolt, 1996).

In summary, as ethnic minorities in England are concentrated residentially in poor neighbourhoods and in particular sectors of the labour market, this may result in poor life chances for the following reasons: first, by an absence of good role models; second, the geographical concentration of social networks, reducing chances of meeting new people and obtaining new job information; and third, their vulnerability to stigmatisation not only because of their ethnic minority status, but also due to the poor reputations associated with deprived neighbourhoods. In other words, ethnic minorities in England are at risk of social isolation as they are residentially concentrated in some of the poorest neighbourhoods, along similar lines to Wilson's hypothesis (Wilson, 1987).

However, the influence of neighbourhood on life chances may not be entirely negative. Wilson's social isolation hypothesis was developed through research in the city of Chicago, which remains characterised by very high levels of ethnic segregation, sometimes referred to as 'hyper-segregation' (Massey, 1985, 1990). The residential patterning of ethnic groups in England, in contrast, never achieves such levels of segregation except for the White group (Peach, 1996a, Johnston et al., 2002a). In fact, almost all ethnic minorities in England live in some of the most ethnically diverse neighbourhoods (Finney and Simpson, 2009b). Therefore, the situation concerning ethnic residential concentration in England is different to that in the USA. Returning to the concept of social ties, it may be that ethnic mixing within neighbourhoods fosters interactions between groups. According to Allport's 'contact' hypothesis, such interactions are likely to, over time, result in more tolerance and understanding of differences between groups,

fostering learning and co-operation (Allport, 1954, Pettigrew, 1998, 2008, Pettigrew and Tropp, 2006, Tropp and Pettigrew, 2005). It may be that the presence of other ethnic groups within a neighbourhood, even one which is deprived, represents an opportunity structure for the spread of information on job-related opportunities which is less likely to be available in more ethnically homogenous contexts (Mollica et al., 2003). In other words, ethnic diversity may strengthen the opportunities for making 'weak ties', which are more important for social mobility than 'strong ties' according to Granovetter, because they allow the flow of new job-related information through links between people with different characteristics and circumstances (Granovetter, 1985, 1973).

The concentration of immigrants and ethnic minorities was originally conceptualised as a natural phenomenon, since according to the concept of homophily, people with similar characteristics (e.g. international migrants) are likely to live with each other (Currarini et al., 2009, McPherson et al., 2001, Mollica et al., 2003). Therefore, ethnic minorities may be at risk of experiencing racial discrimination, their qualifications unrecognised, and their fluency in the English language perceived to be insufficient for employment. Residential concentrations of ethnic minorities helped to overcome these problems through creating demand for local trade and niche business, with ethnic minorities often working for people in the same ethnic group (Peach, 1996, Cutler et al., 2008b, Cutler and Glaeser, 1997). Aldrich and Waldinger called this the *'ethnic enterprise'* theory (Aldrich et al., 1985a, Aldrich and Waldinger, 1990). It has similarities to the *'ethnic enclave'* theory, which also takes into account increased levels of social support from being surrounded by people of the same ethnic identity (Portes and Jensen, 1992, Portes and Manning, 2005, Wilson and Portes, 1980).

The 'enclave' was thought to be a foundation for early economic success without being required to be fully *'assimilated'* to the 'host society' (Zhou, 1997, Portes and Zhou, 1993, Massey and Denton, 1985). It was thought that these concentrations would provide short-term cover during

which immigrants assimilated to local economic and social conditions, gained familiarity with the language and locally recognised qualifications, eventually resulting in them gaining better employment and moving away from the enclave. This process is described in the theory of *'spatial assimilation'* (Fong and Wilkes, 1999, Massey and Denton, 1985). Also thought to be more common in the 'enclave' were: (1) informal *on-the-job* training and apprenticeships (Bailey and Waldinger, 1991, Portes and Jensen, 1992, Portes and Zhou, 1992, Zhou, 2007); (2) the transfer of human capital across generations (Borjas, 1992, 1993, 1994, 1995); (3) informal money loans (Portes and Zhou, 1992, Smith, 1995); (4) conditions for investment from overseas family (Tseng, 1995, Yoon, 1995, Zhou, 1998); (5) and more ethical social norms due to the threat of being forced out of the enclave for bad behaviour (Peach, 1996, Portes and Manning, 2005, Portes and Zhou, 1992). It has been suggested that this idea of a linear, or natural course of integration and dispersal from relative poverty was part of the rationale for successive UK governments to repeatedly ignore the poor living and working conditions of ethnic minority people in the 1950s and early 1960s (Phillips, 1998)

However, studies have shown that some ethnic groups did better than others in assimilating and dispersing from ethnic enclaves (Loury, 2005, Zhou, 1997, Portes and Zhou, 1993). Sowell (1978) suggested that processes of spatial assimilation were more possible for some ethnic minority groups because of pre-existing social norms and traditions that are shared by the normative mainstream (Sowell, 1978, Loury, 2005). For example, in England, Peach has argued that the greater similarity in educational qualifications, language and religiosity between Black Caribbeans and Whites has aided geographical dispersal. In comparison, fewer recognised qualifications, different languages and religious beliefs have contributed to a greater persistence in residential concentration among Pakistanis and Bangladeshis (Peach, 2007). Portes and Zhou (1993) suggested three routes were possible: i) acculturation through embracing values and social norms of the mainstream group; ii) living separately from the mainstream, but without economic

success, resulting in living in poor inner city neighbourhoods and being referred to as an 'underclass'; iii) enjoying rapid economic gains, but living separately and retaining cultural values. This re-thinking of assimilation and the different types of process has been named as the *'segmented assimilation'* theory (Portes and Zhou, 1993, Zhou, 1997).

Segmented assimilation theory emphasises the characteristics of immigrants over any possible influences of the neighbourhoods in which they live. However, after taking into account compositional differences in migrant and ethnic groups, such as differences in language fluency and educational qualifications, it is possible that neighbourhood ethnic composition has an additional impact on the chances for social mobility. For example, this could be through processes of socialisation, access to social networks, and the influence of neighbourhood reputation (Galster, 2011). Deprivation may be bad for life chances, though according to Allport, the ethnic diversity may have benefits. However, in contrast to the positive ideas proposed by Allport's contact hypothesis, Blumer and others have argued that ethnic mixing could also result in an increased likelihood of conflict between ethnic groups (Blumer, 1958, Bobo and Hutchings, 1996, Bobo, 1999). Instead of interactions resulting in tolerance and co-operation, the 'conflict hypothesis' proposes the likelihood of economic competition between groups in neighbourhoods where resources (such as relevant jobs) are scarce (Bobo, 1999). Some groups may be more likely to keep to themselves (or in Putnam's words, 'hunker down' (Putnam, 2007) and restrict the flow of job information among networks within the same ethnic group.

More recently, Robert Putnam has taken this argument further, with the 'constrict hypothesis' suggesting that not only can ethnic diversity erode trust between ethnic groups, but also between individuals (Putnam, 2007). In other words, Putnam suggests that the more diverse the neighbourhood, the less likely that people will be able to make 'weak ties' which would help them to be socially mobile (Granovetter, 1973), because of the lower likelihood of interacting with people from any ethnic group. A lack of social ties and flow of job information may restrict

the spatial extent that a person can look for employment or better jobs. It may also increase the perception that the best chance of getting a job is from inside the ethnic enclave, which may be incorrect. This could result in people being more prone to undercutting salaries in order to secure work or being more likely to accept exploitive circumstances (e.g. forced to work very long hours without payment) (Gilbertson, 1995, Ram et al., 2007, Waldinger, 1997). It can also result in being employed in jobs for which the person is over-qualified and underpaid (Waldinger, 1995, 1997, Waldinger et al., 1985).

In summary, ethnic minorities in England often have poorer economic status and worse chances for upward social mobility compared to their White peers partially because of individual and household characteristics. However, less attention has been paid to their residential geographies, often in the poorest neighbourhoods, which may also have important influences on their life-chances (Phillips, 1998, Cutler et al., 2008). Living in deprived neighbourhoods increases the risk of becoming socially isolated, due to processes of socialisation, restrictions on the diversity of social networks, and employer discrimination based upon poor neighbourhood reputations (Wilson, 1987, Galster, 2011, Dietz, 2002).

According to Allport's contact hypothesis (Allport, 1954) and in line with Granovetter's theory on weak ties (Granovetter, 1973), the historic geographical concentration of ethnic minorities irrespective of their educational qualifications and background in deprived neighbourhoods may provide opportunities for the development of socially diverse informal job information networks. Compared to ethnic minorities living in deprived neighbourhoods predominantly composed of White residents, those exposed to the same level of deprivation but in ethnically diverse circumstances may stand a better chance of improving their economic status and gaining upward social mobility because of:

- a greater supply of weak ties;

- local niche trade/shops;

- social support (Portes and Jensen, 1992, Portes and Manning, 2005, Wilson and Portes, 1980, Zhou, 1998, Aldrich and Waldinger, 1990, Aldrich et al., 1985a, Waldinger et al., 1985).

In other words, ethnic diversity may provide resilience against the effect of deprivation on life chances. Rather than causing ethnic inequalities in social mobility, the ethnic diversity of neighbourhoods may be helping to constrain these inequalities from being worse than they already are.

However, there is a counter-argument which suggests that living in an ethnically diverse neighbourhood can potentially amplify the adverse effects of deprivation on life chances. Instead of ethnic diversity providing opportunity structures to meet people in different groups, developing weak ties and receiving new job information, ethnic diversity actually results in the disintegration of those existing support networks and the restriction of any informal flows of job information (Putnam, 2007). In deprived neighbourhoods where resources are scarce, such as relevant employment opportunities, it is possible that people will keep to themselves, as they are in direct competition with their neighbours for the limited supply of local jobs.

In ethnically diverse neighbourhoods this can result in competition between and within ethnic groups, and increase the risk of racial prejudice (Blumer, 1958, Bobo, 1999, Bobo and Hutchings, 1996). Deprivation may create incorrect negative ideas in employers' imaginations of the residents that live there (e.g. 'lazy', see Elliott, 1999). The ethnic minority-composition of neighbourhoods may also be another characteristic upon which entire communities are unfairly stigmatised (Atkinson and Kintrea, 2001, Permentier et al., 2007). This means that the ethnic minorities in deprived and ethnically diverse neighbourhoods in England are at risk of a double-stigma based on where they live (triple, if they are also discriminated because of their ethnic

identity). Furthermore, the over-concentration of ethnic minorities not only in deprived, but also ethnically diverse neighbourhoods in England will have a significantly adverse effect on ethnic minorities' life chances compared to their White peers.

2.4 Summarising the challenges to measuring neighbourhood effects

The challenges to measure neighbourhood effects have been reviewed in detail by many researchers (Sampson et al., 2002, Dietz, 2002, Manski, 1993, Durlauf, 2004, Galster, 2008). Instead of reviewing every challenge individually, my aim in this section of the chapter is to summarise some of the most important issues through highlighting examples in the literature. In particular, I will focus on discussing the challenges of reverse causality and selection bias, as they are most relevant to my PhD research.

2.4.1 Reverse causality and how to address it with longitudinal data

For discussing these issues, it would help to begin with a case study example to establish a basic understanding. In a US-based test of Wilson's 'social isolation' hypothesis, Elliott used 1990 cross-sectional data of individual people living in Census Blocks (~1000 residents per Block) to analyse the effect of neighbourhood poverty by assessing whether residents got jobs, and on how much they earned annually. The results suggested that individuals exposed to higher rates of neighbourhood poverty were significantly more likely than those from more affluent neighbourhoods to use informal contacts in the search for a job, accounting for three quarters of people who were successful. Less-educated workers resident in high-poverty neighbourhoods

also earned significantly lower annual earnings compared with those in less deprived neighbourhoods (Elliott, 1999).

Other studies in the UK have also used cross-sectional data to test the effect of neighbourhood on life-chances. For instance, Graham et al explored national-level association between rates of 'social well-being' (unemployment, limiting long-term illness, mortality) with the extent to which neighbourhoods were 'mixed tenure' (Graham et al., 2009). Atkinson and Kintrea's survey assessed a range of outcomes (e.g. unemployment, perceived isolation, experience of stigma, and health) for residents of deprived neighbourhoods in Glasgow and Edinburgh (Atkinson and Kintrea, 2001a). McCulloch's study investigated the association between neighbourhood disadvantage and employment (McCulloch, 2001).

However, each of these studies (and others) suffers a major limitation. They cannot draw conclusions with certainty over causal direction, because they use cross-sectional data. As both the cause and effect are measured at the same time, we cannot know for certain which came first. This problem is called reverse causality and cannot be resolved with the use of cross-sectional data (Dietz, 2002).

Atkinson and Kintrea (2001) suggested that the use of longitudinal data would help to provide more certainty on the direction of causation. With cross-sectional data, information on cause and effect are observed at the same time point. Longitudinal data, effectively a series of cross-sectional records of the same people linked through time, is more suited to investigate social mobility. It is an approach used by many studies in Europe and North America (Oreopoulos, 2003, Sampson et al., 2002, Galster et al., 2008, 2010, Musterd et al., 2003, 2008, van Ham and Manley, 2010, Bolster et al., 2007).

Musterd et al (2003) used longitudinal data in the Netherlands spanning two waves in 1989 to 1994 to explore whether the rate of economically weaker households (defined as households

depending entirely on state welfare benefits in 1989) influenced social mobility (defined as the movement of at least one household member from benefits to employment, or vice-versa). This study reflected Wilson's 'social isolation' hypothesis (living in a deprived neighbourhood has negative influences on life-chances). Using lagged models (i.e. measuring exposure to neighbourhood characteristics at the start, with outcomes by the end of the study period), Musterd et al found a small influence of neighbourhood economic weakness on the chances of a household member finding employment if living in a household fully subsisting on benefits in 1989. Strong effects were observed in the opposite direction for those who were previously employed. In other words, the chance of moving from employment to benefits (i.e. 'downward' social mobility) was more likely for individuals living in economically-weak neighbourhoods (Musterd et al., 2003). The main conclusion of this study was that living in an economically weaker neighbourhood may harm not only the chances of finding employment, but the ability to stay in employment.

In a similar study conducted in Sweden, Musterd and Andersson investigated social mobility (defined by a change in the employment position of an individual between 1991 and 1999, only including persons of working age and omitting students and pensioners)(Musterd and Andersson, 2006). This study built upon the earlier work (2003) by testing the degree of social mix (the composition of social rented housing, compared to other household tenures) within neighbourhoods. Poorer individuals in mixed neighbourhoods were expected to have more favourable life chances due to better access to social networks and more positive peer influences. The results found consistent associations between neighbourhood characteristics and social mobility. Employed individuals in 1990 residing in less mixed, low-income neighbourhoods were at significantly greater risk of losing their job compared to those in highly mixed low-income neighbourhoods. Individuals living in more affluent, less mixed neighbourhoods were most likely to remain in employment. The main contribution of this study is that the social mix

of the neighbourhood in which a person lives appears to have an influence on social mobility in Sweden.

2.4.2 Selection bias

Although Musterd et al's studies (2003, 2006) and Elliott's (1999) results support their hypotheses, a major problem is that other explanations are possible. For instance, Elliott concluded that greater exposure to neighbourhood poverty reduces earnings potential. However, it is possible that the workers that lived in lower-poverty neighbourhoods earn higher salaries in reflection of greater productivity, whereas the workers resident in higher-poverty neighbourhoods may be less motivated and less productive. Similar might be said for each of Musterd et al studies which I discussed earlier. For instance, in Musterd et al 2003 study, the individuals that lost their jobs may have done so even if they were resident in economically stronger neighbourhoods because of another *unmeasured* variable(s) (e.g. poorer work ethic). The study designs used cannot entirely disregard these alternative explanations, because they are subject to selection bias (Sampson et al., 2002, Sampson, 2008).

Selection bias is a key problem in studies of neighbourhood effects, because migration and residential mobility are not random (Sampson et al., 2002). Due to motivations or skills related to their own (or their children's) requirements (e.g. proximity to jobs, or access to prestigious schools), people tend to *select* into neighbourhoods that they perceive to provide the best fit for them and their particular constraints (e.g. budget, or commuting tolerance) (Dietz, 2002).

Selection produces bias in the regression parameters because it means that we have not been able to measure all of the things which resulted in where people live and how well they do (Oakes,

2004). Manski suggests that, even if all observable characteristics of the individuals are adjusted in the modelling process, there are still unobservable factors that exert influence upon the selection of neighbourhoods which systematically biases regression parameters (Manski, 1993, 2003). Some academics have gone so far as to suggest that selection bias can render the results of many analyses misleading (Winship and Morgan, 1999).

2.4.3 Can we avoid selection bias?

Can we avoid selection bias? There are some proposed solutions which have been used in the literature. First of all, we take account of what selection bias is and how it affects research on neighbourhood effects. I am trying to identify whether the effect of living in one type of neighbourhood is better (or worse) than living in another one for a person's *(e.g. "Mr X" hereafter)* chances of achieving social mobility. Here, we set aside all other worries concerning whether the neighbourhood characteristics measured, the scale of the neighbourhood and the duration and intensity of exposure (etc) are accurate. The most important question is this: what would the chances for social mobility of *Mr X* be, if he or she were exposed to a different set of neighbourhood characteristics compared to those he or she is currently exposed to?

In reality, this framework is seriously limited: this is because we can only analyse *Mr X's* actual circumstances as observed in the data. We cannot observe *Mr X* simultaneously exposed to a different set of neighbourhood characteristics (the counterfactual). This is simply because it is impossible for any person to be in two places at the same time.

The solution proposed is that we create the conditions by which a counterfactual would theoretically have been situated, and use another person in the data *(e.g. Mr Y)* who is identical to

Mr X in every way we can observe in the data, except for the neighbourhood characteristics to which they are exposed (Maldonado and Greenland, 2002). The difference in neighbourhood characteristics is regarded as a 'treatment' (e.g. Mr X lives in a deprived neighbourhood, Mr Y lives in an affluent neighbourhood). The key problem with this approach is that we cannot observe *every* characteristic of *Mr X* and *Mr Y* which is related to the outcome, and some of these unobserved characteristics may be very important for determining differences in outcomes. This is called *omitted variables bias* and it affects all studies that use observational data.

To solve this selection bias, the 'gold standard' in research is to use a Randomised Control Trial (RCT), which is often used in medical research to test the effectiveness of drugs (Cartwright, 2007). RCTs are a type of study design in which the 'treatment' is randomised, which removes the possibility that one person receives a particular type of treatment because of a selected characteristic. In other words, randomisation removes the possibility of selection bias because people do not have any choice in what treatment they get, which is allocated to them randomly. In terms of my research, the treatment to be randomised is the neighbourhood. There are two ways this could happen in theory: (1) people are randomly allocated to neighbourhoods to live in; (2) neighbourhoods are chosen at random for some sort of treatment (e.g. allocation of funding). In research on neighbourhood effects and social mobility, experimental study designs are rare, but there are at least two high-profile studies extensively reported in the literature, both of which took place in the US: i) the Gautreaux programme; and ii) the Moving To Opportunity (MTO) programme. I will discuss the MTO programme as it was designed as an experimental study of neighbourhood deprivation on social mobility in the USA. In comparison, Gautreaux was the result of a decision in court to ethnically desegregate areas of the city of Chicago (Mendenhall et al., 2006); it was never designed to be an experimental study of neighbourhood effects. However, Gautreaux is a rare example of a study of neighbourhood effects on ethnic differences in social mobility, which is why it is discussed later in this chapter.

2.4.4 Randomised Control Trial: The 'Moving to Opportunity' Experiment

Based in the US cities of Baltimore, Boston, Chicago, Los Angeles, and New York City between 1994 and 2004, the MTO experiment was marketed as a direct test of Wilson's 'social isolation' hypothesis (Ludwig et al., 2008). MTO randomly assigned its *participants* (inclusion criteria allowing households living below the poverty line and located in neighbourhoods with over 40% of the households living below the poverty line) into three groups: (group 1) an *experimental* group, who were offered a voucher that gave participants a choice of moving to a neighbourhood of their choice, so long as it was characterised by a poverty rate less than 10% (Orr et al., 2003). Counselling and assistance in housing relocation were also included; (group 2) a second group, offered the same vouchers, but without any restrictions on where they might choose to move; (group 3) a third group, who were not offered vouchers (i.e. were not awarded the opportunity to move).

Studies of the MTO data on social mobility took place between 4 to 7 years after the programme started. The unit of analysis for social mobility was earnings and welfare receipts, similar to some of the Sweden-based studies by Musterd et al (2006) that I reviewed earlier. Unlike those findings that tended to find significant influences of neighbourhood characteristics on social mobility, the results of the MTO analyses found no significant relationships (Kling et al., 2004). The lack of findings for social mobility largely reject Wilson's 'social isolation' hypothesis.

However, this is not the end of the debate over whether the neighbourhood in which a person lives is important. For example, one reason why there was a lack of significant findings includes the fact that economic growth promoted improved life chances in both the experimental and control group neighbourhoods (Kling et al., 2007). In other words, because the economy was

improving, so did the chances of getting jobs among residents of poor neighbourhoods (as Musterd et al showed in their Swedish study (2006)).

Another reason could have been that there was a lack of significant change in geographical access to jobs. People may have changed neighbourhoods, but their access to employment opportunities did not change. Further to this point, theories on social networking and job information networks suggest that poorer individuals are more likely to be reliant upon informal contacts that are spatially clustered in the neighbourhood environment (Elliott, 1999, Forrest and Kearns, 2001, Ioannides and Loury, 2004, Lin, 2001). It is possible that moving away from their original neighbourhoods resulted in a loss of access to such informal contacts which they relied upon to get jobs. This hypothesis was supported by research in Baltimore (US) by Turney et al through interviews with MTO experimental group members. Turney et al concluded that MTO may have inadvertently created a skills-mismatch, and actually reduced people's chances of finding jobs, instead of improving them (Turney et al., 2006).

Clampet-Lundquist and Massey put forward another explanation, which they test with MTO data (Clampet-Lundquist and Massey, 2008). Their hypothesis was with regards to the duration of exposure (which I discuss later separately). Clampet-Lundquist and Massey hypothesised that a potential reason why MTO-based studies of social mobility were not reporting significant influences of neighbourhood characteristics was that many adults were simply not exposed to "higher-resource" neighbourhoods for long enough to promote their life chances. Many participants are reported to have moved again within the space of a year. The average time between random assignment and the follow-up survey was only 2.2 years. So the duration of exposure was not constant throughout the study population and longer exposure may have been required for a more significant effect (Bolster et al., 2007, Propper et al., 2007, Sampson, 2008).

Recognising this issue, Clampet-Lundquist and Massey adjusted models with a variable representing amount of time people spent in their 'treatment' neighbourhoods. They found supportive results that included significant associations between time spent in less deprived neighbourhoods with better chances of finding employment, increased earnings and reduced welfare benefit claims. However, these latest findings have not found widespread consensus. Ludwig et al suggest that, by adding in a control variable for duration of exposure, Clampet-Lundquist and Massey reintroduce selection bias (due to the non-randomness of residential mobility) which was one of the fundamental challenges MTO was designed to overcome (Ludwig et al., 2008). According to Sampson (2008):

> *"MTO today is – rightly, I believe – the gold standard for experimental social science at the individual level"* (see also Oreopoulos, 2008).

As MTO is said to have solved selection bias relating to the choice of neighbourhoods which people move to, Oakes, Kling et al have suggested that these studies represent the clearest evidence so far of whether neighbourhood characteristics are important (Kling et al., 2004, Oakes, 2004). But it is not without limitations, such as exposure duration. Although many further issues have been identified, I select to briefly outline those having greater relevance for my thesis.

First, MTO participants had been exposed to highly economically segregated areas for long periods before relocation. It is possible that the accumulated exposure to poverty and other risk factors has significant long-term consequences. Expectations that MTO-style 'treatment' involving relocation to relatively more affluent neighbourhoods might have relatively immediate impact seem unrealistic, because the effect on social mobility may require long-term exposure (e.g. to develop good social networks) (Sharkey, 2008).

Second, MTO can tell us very little about the potential influence of ethnic segregation on social mobility. Unlike Gautreaux participants, the *experimental* and *Section 8* MTO groups had to

move to areas deemed to have lower rates of poverty. However, this meant that participants did not necessarily have to move out of ethnically segregated neighbourhoods (most did not). The most affluent Black neighbourhoods are not as wealthy as the most affluent White neighbourhoods. In affluent Black neighbourhoods, there are still poor-quality schools and a scarcity of human, social and financial assets. In summary, MTO is said to have merely:

> *"shuffled families around within the confines of racially segregated neighborhoods… stack[ing] the deck against the detection of neighborhood effects"*
>
> (Clampet-Lundquist and Massey, 2008)

This has important consequences for analyses, since no significant differences in segregation were experienced by the experimental or control group, we cannot test whether moving to a more affluent White neighbourhood would have in some way influenced the chances of social mobility. Similarly, since the majority of individuals in MTO were Black and female, ethnic inequalities in social mobility and gender differences cannot be explored (Kling et al., 2004, 2007, Ludwig et al., 2008, Sampson et al., 2002). By design as I discussed earlier, MTO was focused upon the individual, offering vouchers to very poor families. Only very poor families were involved, so MTO research cannot analyse how moving might have influenced the life chances of more affluent families. The economic and ethnic segregation of the US also means that MTO analyses are not necessarily generalisable to other countries, such as the UK.

To sum up, MTO is seen as a major contribution to experimental social science with interests in potential influences of neighbourhood characteristics. Despite its limitations, it has significant design advantages over studies using observational data. It is a rare example of *quasi experiments* in the social sciences (Sampson, 2008). This is because we cannot easily randomise people or households to neighbourhoods for reasons to do with ethics, the difficulties of organising such an ambitious experiment, the considerable expense that reflects the great

ambition, and the time-consuming nature of what would need to be achieved before any data could even be analysed (Heckman and Smith, 1995). Even then, MTO has received criticism for not being completely random. For most social scientists, an MTO study is unlikely. The MTO studies provide important steps forward in social science and we can learn a lot about the limits of non-experimental analyses from them. This is why their design advantages and disadvantages were reviewed here in detail. However, it is clear that the reliance upon observational data (rather than experimental) is likely to continue (Sampson, 2008).

2.4.5 Solutions to selection bias without using experimental data

So, if the best quality of study design is unavailable due to the difficulties of randomisation, what can be done to improve the reliability of longitudinal studies with observational data?

Fixed-effects help to control for selection bias fitting a dummy variable for every individual within the model. Modelling neighbourhoods in this way removes selection bias, but when working with very large datasets and hundreds of thousands of geographical areas, it also creates other problems (e.g. loss of model power through using up degrees of freedom) (Allison, 2005). *Sibling studies* (i.e. surveying twins to control for selection bias) might be able to control for some unobserved bias as both siblings would have grown up in the same conditions (e.g. parenting). However, data of this kind is not available for studies of ethnic inequalities in social mobility at the neighbourhood scale in England (Aaronson, 1997).

Instrumental variables is a technique used in a model that involves fitting a variable which is significantly associated with the 'treatment' (e.g. neighbourhood deprivation), but not the dependent variable. This condition allows the instrumental variable to remove all selection bias

from the treatment effect, making the study design quasi-random. However, instrumental variables are difficult to find and even those which work in models may be difficult to justify theoretically (Cutler et al., 2008b). *Difference models* may also help, which involve measuring differences between two time periods, removing unobserved time-invariant characteristics (Galster et al., 2008). Solutions to selection bias for analyses in this thesis will be discussed further in the Methodology chapter.

Some recent studies have made use of *'natural experiments'* (Bolster et al., 2007, Oreopoulos, 2003, van Ham and Manley, 2010). These studies made innovative use of existing longitudinal data that included smaller populations in social housing who, at least in theory, had reduced or no choice over the neighbourhood in which they were allocated. The general methodological approach was to test for influences of neighbourhood characteristics separately for individuals in private-tenure (who can choose their neighbourhood which creates selection bias) and compare the results with another model for individuals in social housing (with little or no choice of neighbourhood).

Oreopoulos (2003) used longitudinal data in Canada to analyse earnings, employment and welfare claims. Oreopoulos reported significantly positive associations with living in a more affluent neighbourhood. However, this was only for those in private-tenure, with no significant "neighbourhood effects" found for those in social housing. For Oreopoulos, the logical conclusion was that the influences of neighbourhood characteristics on the private-tenure study participants was not real – it was selection bias (Oreopoulos, 2003).

In the UK, Bolster et al (2007) investigated the effect of neighbourhood disadvantage on earnings over the space of 10 years in the British Household Panel Survey. No evidence was found of a negative influence of neighbourhood disadvantage on earnings. Though counter-intuitively, positive association was found for couples and for home owners. No significant association at all

was found for renters, though it is important to note that Bolster et al did not attempt to explain these differences in a similar way to Oreopoulos.

Most recently, Van Ham and Manley (2009) used longitudinal data in Scotland to explore transitions from unemployment to employment (and employment to unemployment). They were interested in the extent that housing tenure mix and socioeconomic deprivation of the neighbourhoods in which individuals lived in 1991 would influence changes in employment status by 2001. They found that deprivation was a more important predictor of labour market outcomes; tenure mix was not significantly associated with change in employment status. Further, calculating separate models for individuals in private-tenure and social housing demonstrated only significant association with deprivation for the former group. In other words, Van Ham and Manley found that neighbourhoods only appeared to influence the group that could relatively freely choose where to live and, like Oreopoulos (2003), they concluded that these associations were the result of selection bias, but not a real effect (van Ham and Manley, 2010).

The wider conclusion for this thesis on how to cope without MTO-style experimental data is that *quasi-experimental* settings may offer a readily-accessible alternative in some of the largest longitudinal datasets available. A particular advantage of longitudinal data is that I am able to model and compare the theorised impact of selection bias upon results, though a disadvantage is that the findings may sometimes only be generalisable to the selected group (e.g. individuals in social housing). The viability of such an approach, however, does rely upon the degree to which individuals in social housing are able to choose their neighbourhood, which was not a problem for the Scotland-based study but may be in other settings (van Ham and Manley, 2010). In other places, social-housing may involve an element of choice, which would reduce the feasibility of the *quasi-experimental* study design.

In this section of the literature review, it has become clear that many studies have demonstrated impressive effort in careful design, innovative thinking and statistical application in the use of both observational and experimental data resources. But there remains considerable uncertainty over whether we can a) measure 'neighbourhood' and b) identify independent causal effects of neighbourhood characteristics (if they exist).

Longitudinal design is a solution as it helps us to observe cause before effect. In many longitudinal studies of observational data, neighbourhood characteristics have been shown to have association with social mobility. But even longitudinal studies are limited by the problem of selection bias in observational data. This problem was solved to an extent by MTO, but this solution was not perfect (MTO could not force people to remain in their neighbourhoods, so only those who chose to be part of MTO were included. This means MTO is a selected population which influences all potential outcomes, including the likelihood that people would selectively move out of their 'treatment' neighbourhoods before any effect could occur). Innovative use of existing longitudinal observational data has provided interesting avenues for taking research forward, producing alternative findings and extending the debate on whether some neighbourhood characteristics really matter. These ideas are still in developmental stages and require further testing. But there are other major unresolved issues that continue to cast a cloud over all research on neighbourhood effects.

From this literature review, it is clear that there are some problems that can be avoided (e.g. avoiding reverse causality by using longitudinal data). But there are a lot of other problems with measuring and identifying potential influences of neighbourhood characteristics which have not been solved. My research, as others, is limited in the respect of finding solutions to these problems and will use the most appropriate data and method available to investigate the research questions: longitudinal data, making adjustment for selection bias through examining *quasi-experimental* population groups if possible.

In knowledge of the evidence for neighbourhood influences on social mobility, and in mind of the challenges that face studies of this type, I examine the literature that looks specifically at ethnic inequalities of social mobility and potential influences of neighbourhood characteristics.

2.5 Review of the studies that investigate the relationship between neighbourhood deprivation, ethnic composition, and ethnic inequalities in social mobility

Ethnic inequalities in social mobility have been identified in the UK (e.g. Heath and McMahon, 2005, Platt, 2007). Various studies have shown that individual characteristics, educational qualifications and parental socioeconomic background do not fully explain this inequality (Platt, 2005b, Heath and Smith, 2003, Heath et al., 2008b, Li and Heath, 2008). Significant attention has been paid to studying inequalities between and within ethnic groups in life chances for social mobility due to educational attainment, gender, and migrant generation/place of birth (e.g. UK or overseas). Less attention, however, has been paid towards investigating whether neighbourhood deprivation and ethnic composition are important for exacerbating or constraining ethnic inequalities of social mobility. I have already outlined the theoretical relevance of deprivation and ethnic composition for ethnic inequalities in life chances, and some of the most important challenges in the identification of neighbourhood effects. Drawing on all knowledge and debate discussed throughout the first chapter and this literature review so far, I now evaluate the existing evidence on the effect of neighbourhood deprivation and ethnic composition on ethnic inequalities in social mobility in the UK, Europe and North America.

2.5.1 Cross-sectional, observational studies

Galster et al had similar methodological issues with their cross-sectional ecological study of ethnic minority concentration (Galster et al., 1999), though they were able to compare cross-sections for 1980 with 1990 to identify change in economic success. Metropolitan area-wide group average scores were calculated for education, occupation, labour force and earnings outcome variables and tested against a measure of same-ethnic group neighbourhood concentration. Galster et al found that the average rate of employment grew less quickly in ethnically concentrated neighbourhoods over time. Galster and colleague's study (1999) finds broadly supportive results to research done by Cutler and Glaeser (1997) and improves upon it by comparing change over time. However, it is important to note that Galster et al study only looked at change at the neighbourhood level, which is not the same as social mobility measured at the individual level.

The Fourth National Survey of Ethnic Minorities (conducted in 1993-1994 (Smith and Prior, 1996)) was an individual-level survey especially designed to investigate socioeconomic circumstances of the ethnic minority population in the UK. Clark and Drinkwater (2002) used this data to explore rates of self-employment in neighbourhoods with varying levels of ethnic minority concentration (measured as a % same ethnic group within a geographical area). After controlling for several individual characteristics including language fluency and recent migrant status, lower rates of self-employment were found amongst people living in neighbourhoods with higher levels of ethnic minority composition. Furthermore, it was found that what people predicted their earnings could be in the future made a significant difference on whether they were in paid work or self-employed. This suggested the possibility of discriminatory wages in driving ethnic minority individuals towards entrepreneurship (Clark and Drinkwater, 2000). However, this entrepreneurship occurred more often in non-ethnic minority concentrated neighbourhoods,

which is the opposite of the 'protected/niche market' and 'ethnic enclave' hypotheses (Aldrich and Waldinger, 1990, Aldrich et al., 1985b, Portes and Manning, 2005).

Clark and Drinkwater (2002) used the same data again to explore association between neighbourhood ethnic minority concentration and employment activity: employment; unemployment; self-employment; economic inactivity. The design was very similar to their previous study (2000). They found self-employment was less common in neighbourhoods with higher levels of ethnic minority composition. But levels of unemployment in these neighbourhoods were still relatively high (Clark and Drinkwater, 2002). A third study, again with the same data, demonstrated results to suggest that individuals with a preference for residing in a neighbourhood with a higher level of ethnic minority concentration were significantly less likely to be employed (Clark and Drinkwater, 2007).

Clark and Drinkwater's studies are generally in line with findings from the US, in that the ethnic minority composition of the neighbourhood generally predicts less-favourable social mobility-related outcomes. However, like Cutler and Glaser (1997, 2008), each of Clark and Drinkwater's studies will probably suffer the reverse causality problem due to the data being cross-sectional. A second issue is the neighbourhood scale; were wards (average population of 5,000 residents) representative of 'neighbourhoods' in this case? Smaller geographical units for that particular time period were available; the UK 1991 Census with which they calculated their neighbourhood ethnic minority concentration scores were available at the *Enumeration District* scale (with mean populations under 700 residents (Martin, 1992)). This scale may not have been used because there was no access to smaller geographical data for confidentiality reasons, but this was not stated clearly by Clark and Drinkwater in any of their studies.

Thirdly, for their 2002 study, the large number of independent variables led to greater volatility in the results for each ethnic group (due to small numbers for each ethnic group). To solve this

problem, Clark and Drinkwater aggregated up all ethnic minority groups into a single group with a White group comparator. Evidently this solution creates further problems, given the varied experiences and diversity of socioeconomic outcomes known between ethnic groups (Heath and Cheung, 2007, Heath et al., 2008, Li and Heath, 2008). In compensation for this rather big generalisation, the authors used the Sample of Anonymised Records (SARs) 1991 for comparison. But this created further limitations, since there was a compromise of small geographic scale for the increased sample size[1]. Although broad trends were similar in both study populations, the limitations imposed by each dataset suggest that interpreting the results of this particular study should be done with extra caution.

Fourth, selection bias would also have been a problem due to the observational (non-experimental) nature of the data. In attempting to adjust for selection bias, Clark and Drinkwater (2007) used a propensity score method that attempted to match people with a preference for ethnically concentrated neighbourhoods with identical people who preferred less ethnically concentrated neighbourhood *(i.e. Mr X* and *Mr Y).* This approach was claimed to be 'robust against misspecification under certain conditions' (Clark and Drinkwater, 2007), though it was not clear what those conditions were or whether they were successful. Furthermore, this approach was only taken in the 2007 paper, not the 2000 or 2002 publications.

2.5.2 Longitudinal, observational studies

A longitudinal study in Stockholm, Sweden, recently made use of multilevel models (which take into account that people who live near each other are more similar compared to those who live far

[1] The SARs geographical units used to represent 'neighbourhood' in this study were Local Authority Districts, which are rather large and go against much opinion that smaller scales are more appropriate (http://www.statistics.gov.uk/geography/electoral_geog.asp#lasu).

apart) for investigating whether economic or ethnic characteristics of the neighbourhoods in which children live have an influence upon future employment and earnings. Urban (2009) reported findings which are similar to many other studies in that the strength of the effect associated with neighbourhood is small relative to individual factors. Neighbourhood ethnic composition (% immigrants per geographical area) had inconsistent influences upon outcomes, which was rendered almost entirely insignificant after adjusting for neighbourhood deprivation. The final models suggested that growing up in a poor area increased the chances of unemployment in early adulthood (Urban, 2009).

Urban's study makes an important contribution to the debate so far with respect to growing up in neighbourhood ethnic concentrations (most other studies only look at adult populations). First of all, it focuses upon a period in life – the transition from adolescence to early adulthood – which none of the other studies I reviewed above have explored. This period has been identified as a time when parental influences may decrease and young people become more influenced by peers, role models in the neighbourhood that they live (Ellen and Turner, 1997). The second merit is the use of longitudinal data to measure cause before effect, which avoids the reverse causality problem.

However, there are disadvantages which include the lack of adjustment for selection bias (children are likely to live in neighbourhoods chosen by their parents) and that 10 years may not be a long enough time period for measuring significant outcomes between adolescence and young adulthood. Immigrant status was not the primary interest and just controlled within models - the association was not reported. Therefore ethnic and immigrant inequalities were not a focus of this study, despite the study actually exploring neighbourhood ethnic concentration.

Another recent study of adults in Sweden (Musterd et al., 2008) has improved on the problems with Urban's study by exploring lots of ethnic groups, but has also contributed in many other

ways too. Musterd et al study used longitudinal data from 1995 to 2002 to investigate ethnic inequalities in social mobility and potential influences of neighbourhood same-ethnic composition, with neighbourhood characteristics measured for *bespoke* neighbourhoods of 250m grids around each individual. The ethnic groups included were: Bosnian; Chilean; Ethiopian; Iranian; Iraqi; Turkish; and Somalian. Controlling for a range of other factors, Musterd et al found that higher levels of the same-ethnic group residential concentration of the neighbourhood in which an individual lived in 1995 was associated with lower average earnings between 1999 and 2002, compared with individuals in less ethnically concentrated neighbourhoods.

These results were for all ethnic groups in one regression model but the associations for each ethnic group were unfortunately not shown (which would have identified any persisting inequality between different ethnic groups). Musterd et al did also calculate separate models for each ethnic group and reported that the negative effect of same-ethnic concentration was similar within all ethnic minority groups. Positive influences on earnings were found in the short-term, especially for recent immigrants, but these benefits often turn to overall losses in earnings over time (only Somali women did not follow this trend) (Musterd et al., 2008). Using a very large longitudinal dataset, multiple ethnic groups, small-scale neighbourhood definitions, and with adjustments for selection bias and multilevel design, Musterd et al study reflects a carefully planned example of using observational data to answer my research question in Sweden.

2.5.3 Quasi-experimental and natural experimental evidence

There has been no experimental study to explicitly investigate whether neighbourhood deprivation or ethnic composition influences ethnic inequalities in social mobility. The MTO studies, as previously outlined, are experimental but focussed entirely on low-income urban

populations who were almost entirely Black American. Ethnic inequalities in social mobility could not be examined (Sampson, 2008).

However, there are some studies which have used an instrumental variable to design quasi-experiments. In a study titled *"Are Ghettos Good or Bad?"*, Cutler and Glaeser used instrumental variables with cross-sectional data from the 1990 US Census to examine whether outcomes for ethnic minorities as a whole are more or less favourable depending upon the extent of ethnic minority concentration in US cities (Cutler and Glaeser, 1997). They did this at the scale of entire cities, by which they claim to be able to avoid issues of intra-city selection bias because people will choose neighbourhoods based on the selection available within the city. Their instrumental variable in this case was the city boundaries. A variety of economic outcomes were shown to be significantly worse for a Black group compared to a White group with higher levels of city-based ethnic minority concentration, including: poorer rates of high school graduation; greater incidence of being 'idle' (defined as neither in school, nor working); lower earnings; and a greater number of single mothers.

Cutler and Glaeser also reported large effects of neighbourhood ethnic concentration on ethnic inequalities in economic outcomes. The more ethnically concentrated the neighbourhood, the greater the inequality between Whites and Blacks in their economic success. Cutler and Glaeser explored why ethnic concentration was related to the inequality in outcomes between Blacks and Whites. They found that higher levels of ethnic minority concentration were associated with decreased levels of educational qualifications, lower chances of finding employment amongst parents, and longer travel-times to the workplace. However, these associations could only account for about one third of the variation within the regression model. The results also suggested that ethnic minority concentration was harmful to Black residents' life chances, but not for White residents.

Naturally-occuring experimental data (or 'natural experiments'). As mentioned earlier my discussion of MTO, the Gautreaux programme is a famous example of a natural experiment in the social sciences. Gautreaux resulted from a 1976 Supreme Court authorisation for reducing the ethnic segregation of Black residents in Chicago. 60% of the Black residents lived in Census tracts where the Black ethnic composition was over 90% (Peach 2007). The goal was to place families randomly in tracts with 30% or less Black residents, though a large number were moved to neighbourhoods with high percentages of Black residents, high crime rates, and low family income (Rubinowitz and Rosenbaum, 2002). 50% of families were moved to suburbs on the urban fringe whilst the other 50% stayed in the city. Crucially, families had a very restricted choice over the community they were moved to, and this was not related to their socioeconomic circumstances. Although families could refuse an offer of a move, 95% accepted their first offer. This meant that two randomised groups could be explored: (group 1) city dwellers; (group 2) suburbanites (Mendenhall et al., 2006).

The analysis of the Gautreaux programme by Mendenhall et al provides interesting and important follow-up to Cutler and Glaeser's, and Galster et al research. Importantly Gautreaux is longitudinal, but the Cutler/Glaeser/Galster studies were cross-sectional and would have also suffered from reverse causality. Using individual-level data and the experimental study design of Gautreaux, Mendenhall et al found evidence to support the earlier findings that used observational data. Black women relocated to areas of low Black ethnic concentration and higher levels of resources tended to enjoy longer periods in employment and spend less time on welfare. Those relocated to neighbourhoods with higher levels of Black ethnic concentration and lower levels of resources tended to have poorer outcomes (Mendenhall et al., 2006).

Also using Gautreaux data, Popkin et al showed that women that were moved to the suburbs were 25.4% more likely to be employed than those still in the city. Moreover, of Black women without any prior work experience, the post-relocation employment rate for those in the suburbs was

substantially better (46.2%) compared with those who were still in the city (30.2%) (Popkin et al., 1993). Furthermore, the educational composition of the neighbourhood in which people were placed appeared to have a negative influence upon benefit claims (i.e. fewer claims is positive), though there was not a significant difference between claims in the city and those in the suburbs (Rosenbaum and DeLuca, 2000). Further studies have suggested that employment outcomes and the children's educational attainment of relocated families in suburban neighbourhoods characterised by lower rates of Black ethnic composition were better than those in the city (Rosenbaum, 1995).

There are some issues with the Gautreaux programme that maybe limit its potential. First, is the selection of individuals into the dataset. Criteria for inclusion were: a) a family must have less than four children (due to practicalities of finding homes for very large families); b) a family must be able to prove a reputation for paying rents on time; c) a family must have a good record for housekeeping, as perceived by visits of staff members. Such is the nature of the inclusion criteria, it is suggested that the results of Gautreaux programme investigations are only generalisable to families with good rental histories and those who volunteer to participate in residential mobility programmes (Mendenhall et al., 2006). Thus, academics using this data are not able to directly infer trends concerning the potential effects of neighbourhood characteristics on the life chances for social mobility more generally.

Second, the potential selection bias involved in people leaving the dataset is a big problem (just like with MTO). Follow-up surveys for families in 1988 excluded anybody that was offered the chance of moving but did not accept, or those that did accept but had since moved again. This attrition in the follow-up survey could seriously affect the success of randomisation (Oreopoulos, 2008), as we know that residential mobility is not random. This is important because experimental data relies on the treatment being random; if it isn't random, it is not experimental anymore and could suffer selection bias (i.e. just like observational data). However, these studies

made efforts to track down and survey all Gautreaux participants regardless of whether they had moved again or not at all, maintaining the credibility of their results.

Third, there is evidence that the financial assistance received by Gautreaux programme families increased the chances that they would be able to remain in more affluent neighbourhoods post-relocation if they chose to do so, which would have been unlikely for those not receiving assistance (Keels et al., 2005). Financial assistance to the experimental population so that they could live long-term in their new wealthier neighbourhoods may have reduced the incentives to find employment or become more socially mobile. Therefore the Gautreaux programme was unique in moving people out of ethnic segregation in a randomised manner, but may also have biased the data in other ways.

Gautreaux did not have a lot to say about what causes the inequality in economic success between Black and White groups, although ethnic minority concentration appeared to explain some of the gap. In addition, it did not include enough men in the sample for reliable analysis, just like MTO (Sampson, 2008). A further issue is that these results may not be generalisable to other countries. Black ethnic segregation in the US has been consistently high throughout the 20th century, far outweighing segregation amongst other minority ethnic groups in the US (Peach, 1996a). Furthermore, it has also been demonstrated that levels of ethnic minority concentration in the UK vary from one ethnic group to another, with Bangladeshis and Pakistanis showing the greatest tendency for neighbourhood residential concentration, but at no point are levels reflective of those experienced amongst the Black ethnic population in the US (Johnston et al., 2002a, Peach, 2009). It is on this very important note that attention turns from the US, to the UK context. This is a key rationale for my own research in the UK.

There is a small, but growing number of critical studies conducted in northern Europe (Edin et al., 2003, 2004) and the US (Cutler and Glaeser, 1997, Cutler et al., 2008) recently that make

significant methodological advancements towards resolving the problems of reverse causality and (to an extent) selection bias. Cutler et al remained unconvinced about their previous findings (1997) in light of the problems of selection bias in particular. The driving force behind this suspicion was the knowledge that residential mobility is not random. There was probably a selective migration of individuals with lower educational qualifications moving into more affordable neighbourhoods with high levels of ethnic minority concentration. This is because with low qualifications, these people are unlikely to have high-earning jobs, which means they cannot afford to live in more expensive neighbourhoods.

Cutler and Glaeser returned to their cross-sectional study of 1990 US Census microdata with more advanced techniques to adjust for selection bias than they had previously used. For example, they identified the amount of trees in a neighbourhood as an instrumental variable. An instrumental variable removes bias from a model by being significantly related to the treatment (e.g. the neighbourhood deprivation), but not at all related to the outcome variable (e.g. employment). With these alternative methods, they found very different results to those which they published previously (Cutler and Glaeser, 1997). They found those living in more ethnic minority concentrated neighbourhoods actually earned more than they would in less concentrated neighbourhoods, once it was taken into account that they were already low earners.

Cutler et al's most recent study (2008) fundamentally altered the conclusion of their previous paper (1997), and this is an example of just how important selection bias *might* be for studies of observational data. Could the direction of causal effect in Clark and Drinkwater's studies (2000; 2002) maybe also change with similar adjustments? This example shows that results and conclusions are dependent upon study design. Since reverse causality and selection bias are known problems, designs which help to reduce these confounding effects need to be explored.

Another two recent studies are notable for their innovative design. There is a history of random-assignment government policy of refugees in Sweden and Denmark (i.e. refugees had no choice in which neighbourhood they were located). Edin et al (2004) and Damm (2009) used this data for studies of the influence of ethnic minority neighbourhood concentration upon social mobility for refugee groups. In Sweden, Edin found refugees were likely to have higher earnings if they were allocated to neighbourhoods characterised by higher levels of ethnic minority residential concentration (Edin et al., 2004). Damm's study finds similar results, with ethnic minority neighbourhood concentration positively associated with mean annual earnings (Damm, 2009). Each of these findings support the informal job information networks literature (Ioannides and Loury, 2004) suggesting a greater rate of successful job-matching in more ethnic minority concentrated neighbourhoods.

Edin et al and Damm's studies, like Oreopoulos (2003) and van Ham and Manley (2009) more recently, are examples of innovative use of existing observational longitudinal data resources with refined study populations which are less likely to be affected by selection bias. In theory at least, this should provide more robust results. However, because refugees and people who live in social housing are selected groups, and not representative of the wider population, the results of studies which focus only on these groups are not generalisable. A second issue with the refugee studies is that they employ very large geographical scales to define neighbourhood (Damm in particular uses municipalities that have a mean population of approximately 10,000 residents). Theoretically, this may be less useful as the mechanisms hypothesised to link neighbourhood with social mobility are most likely to occur at small geographical scales (Dietz, 2002, Andersson and Musterd, 2010).

To conclude, Clark and Drinkwater's studies remain the only examples of studies on whether neighbourhood characteristics influence ethnic inequalities of economic status in the UK. Clark and Drinkwater's broad conclusions reflect hypotheses of negative influences of living in

neighbourhoods characterised by higher levels of ethnic minority residential concentration. But their reliance upon the Fourth National Survey of Ethnic Minorities also places significant limitations upon the number of individuals within each ethnic group (small sample sizes increase the unreliability of the results), and does not avoid the reverse causation problem. No studies using a more complex design (e.g. longitudinal study) have been conducted in the UK. In summary, this section has demonstrated is that whether neighbourhood characteristics influence ethnic inequalities in *social mobility* (i.e. individual-level change in socioeconomic position over time at the individual level) is understudied in the UK.

2.6 Are ethnic inequalities in social mobility influenced by neighbourhood deprivation and ethnic composition? A summary of the evidence so far.

The introduction of this thesis identified a lack of a geographical approach to understand why ethnic inequalities in social mobility persist in England. The early part of this literature review discussed theories linking neighbourhood characteristics with the life chances of residents, and specifically, argued that deprivation and ethnic composition may be highly relevant for ethnic inequalities in social mobility (after taking into account individual and household characteristics). After summarising some of the main challenges for identifying neighbourhood effects and potential solutions available, I reviewed the evidence compiled so far on ethnic inequalities in economic status/social mobility and neighbourhood effects. Overall, there is evidence that neighbourhood deprivation and ethnic composition matter for ethnic inequalities in social mobility. Some evidence is of high quality, such as the Gautreaux programme in the USA (e.g. Mendenhall et al., 2006, Keels et al., 2005) and the natural experiments in Sweden (Edin et al.,

2003, 2004) and Denmark (Damm, 2006, Damm and Rosholm, 2010). There is also high quality longitudinal evidence from Sweden (Musterd et al., 2008). However there is no equivalent high quality (i.e. longitudinal) study in England, where only research using cross-sectional design by Clark and Drinkwater exists.

This is surprising, given that a substantial amount of literature on ethnic inequalities in social mobility has taken place in England (e.g. Li and Heath, 2008, Heath and Cheung, 2007, Platt, 2007, Peach, 2005b). As I have discussed, due to the different circumstances and historic patterns of migration in England compared to countries like Sweden, Denmark and the USA, and the nature of some of the studies (e.g. natural experiments with refugees), I cannot simply assume that the results of studies in these countries generalise to England. To understand whether neighbourhood deprivation and ethnic composition have important effects on ethnic inequalities in social mobility in England, this requires better designed research than the cross-sectional studies of Clark and Drinkwater.

In conclusion, there is substantial theoretical support for effects of neighbourhood deprivation and ethnic composition on social mobility. Deprivation is hypothesised to be overwhelmingly negative for life chances, for a variety of reasons including socialisation, social networks and neighbourhood stigmatisation. In comparison, there are theories which suggest both good and bad consequences of neighbourhood ethnic concentration and ethnic diversity. Ethnic diversity could be positive, fostering tolerance, demand for niche enterprise, and more opportunities for developing weak ties. On the other hand, ethnic concentration may provide local conditions for ethnic minorities to get jobs and become economically successful because of less discrimination and more social support. However, ethnic diversity could be bad because it increases individualistic behaviour and diluting social ties, raising competition between groups for scarce resources. The potential for racism between groups may also be higher in more ethnically diverse neighbourhoods. Meanwhile, people from neighbourhoods with high ethnic minority

compositions may also be discriminated against by employers. However, none of these theories have been adequately addressed with a longitudinal study design in England. This is the gap which the rest of my thesis seeks to address. Five broad questions will be answered in the following chapters (one question per chapter). How I will address these questions is detailed in Chapter 3 (Data and Methods). The five questions are:

1. (Chapter 4) Are there regional and neighbourhood ethnic inequalities in economic status in the English censuses of 1991 and 2001?
2. (Chapter 5) Are ethnic inequalities in transitions in economic status linked to neighbourhood deprivation and diversity?
3. (Chapter 6) Are ethnic inequalities in social class mobility influenced by neighbourhood deprivation and ethnic diversity?
4. (Chapter 7) Are inequalities in economic status within ethnic groups associated with the deprivation and ethnic composition of neighbourhoods?
5. (Chapter 8) Are inequalities in social class mobility within ethnic groups associated with the deprivation and ethnic composition of neighbourhoods?

3. Data and method

3.1 Introduction

The purpose of this chapter is to describe the options available for investigating the research questions outlined in the Literature Review. First, I discuss the merits and drawbacks of different types of study design and identify appropriate data for addressing each research question. I outline the final selection of data that I take forward for further analysis. Next, the chapter goes on to explore this data in greater detail and evaluate the measurement of key concepts in my thesis: ethnicity; social mobility; measurement of neighbourhood; neighbourhood deprivation; and neighbourhood ethnic composition. Finally, I investigate which quantitative methods are appropriate and feasible for answering each of my research questions and I address some key study design issues that will help me to get the best out of the data available.

3.2 What type of data is required and what is available?

3.2.1 Introduction

To answer the research questions I have derived from the literature review, careful attention must be given towards what approach and tools I will need for the data analysis. One type of analysis may not be suited to answer all of the research questions. On the other hand, it may be that some questions can be answered using similar approaches. Furthermore, although it is important to define the most appropriate way to tackle a research question, there is likely to be a gap between

what is really needed and what is actually possible given various constraints (e.g. access to relevant data). This part of the chapter is all about exploring what the best suited designs are for my investigation, and finding a balance with what is actually feasible for a PhD with time and resource constraints. I structure this part of the chapter into three sections:

3.2.2 Ecological or individualistic study design?

Ecological study design has often been used by geographers to investigate research questions. An ecological design describes the use of data that is grouped or aggregated, for example, at the neighbourhood level. In comparison, data which is not aggregated, but available for individual persons is often referred to as individual level data. Ecologically designed geographical studies are often focused on counts of events, or the rate at which events occur within a population. An example of an ecological study includes geographical variation in the unemployment rate (Simpson et al., 2006). On the other hand, a study design at the individual-level may investigate the likelihood that an unemployed person will find a job (van Ham and Manley, 2010). My first methodological consideration for this thesis is whether ecological study design is useful, or if individual-level data is more suitable (or whether both types could be used effectively).

Research questions 2-5 which I outlined in the Literature Review were concerned with what happens to the individual over time, given a set of particular exposures at the individual, household and neighbourhood levels. This does not strictly remove the possibility of using ecological study design. For example, my first research question *(Are there regional and*

neighbourhood ethnic inequalities in economic activity in the English censuses of 1991 and 2001?) is particularly suited to an ecological design because the focus is on ethnic inequalities at geographical (i.e. ecological) scales, not inequalities between specific individuals. So what ecological data are available and how appropriate are they for answering this research question?

A key source of ecological data for UK research is the census. The census is conducted once every ten years during the first year of each decade (e.g. 2001). Unlike other surveys, the census uniquely covers all individuals resident within the UK. Sample sizes for individual ethnic groups are also likely to be larger than in other data. Another strength of the census is the range and detail on issues such as economic activity, education and household composition. Important for my thesis, the census was also among the first surveys in the UK which included a question on ethnicity (which I will discuss later in this chapter).

Although the census is not strictly ecological (because individual people supply information), the way in which it is accessible is ecological. Aggregated census data is downloadable from the 'http://casweb.mimas.ac.uk/' website, but the most detailed information on people is only available at larger geographical scales. The information is available in an aggregated 'count' format, but not the responses of each person individually (unlike the Samples of Anonymised Records (SARs)). Geographical units vary between 1991 and 2001 censuses, ranging at the large scale from regions (e.g. Government Office Regions in 2001 and Standard Regions in 1991) of the UK, down to areas of approximately 300-500 people (e.g. Output Areas in 2001, similar to Enumeration Districts in 1991). It is useful for calculating a rate of an event occurring within a particular geographical unit, which can then be monitored over time (e.g. tracking the unemployment rate over time in different regions of England). Therefore, the UK census is potentially a useful source of data for answering my first research question. However, is the census (or any other source of ecological data for that matter) useful for investigating my other research questions?

To answer question one, it is important to consider the theoretical implications of using ecological data to imply patterns and processes at the individual level. It is not always the case that a person picked randomly from a neighbourhood with a high unemployment rate would also be unemployed. Similarly, it is not always the case that a person picked randomly from a neighbourhood with a high percentage of Chinese people would also be Chinese. Predicting what may be happening at the individual level using ecological (i.e. geographical) data is likely to be misleading (Robinson, 1950). The main problem is that relationships observed at aggregate levels do not necessarily apply for individuals. This use of ecological study design to make potentially mistaken interpretations about patterns and processes at the individual level is commonly called the 'ecological fallacy' (Openshaw, 1984a).

Therefore, as my first research question is aimed at uncovering broad geographical trends in ethnic inequalities through time, the UK census is a suitable resource. However, since questions 2-5 were focused on change among individuals, the UK census was not appropriate to use on its own because of the ecological fallacy.

However, using an individual-level study design to interpret results at the ecological level is also troublesome. This is called the 'individualistic fallacy' (Alker, 1969). For example, we may know an individual person's social class, but that does not necessarily mean that other people in the same neighbourhood have the same social class. Alker recommended that social scientists should be aware of both types of fallacy simultaneously. Following Alker's advice, my research will try to avoid the individualistic and ecological fallacies for questions 2-5 by combining ecological data from the census (i.e. geographical data) with a second data set at the individual level. In other words, the data will include characteristics of individual people and characteristics of the neighbourhoods in which they live. This is what some researchers have referred to as 'multilevel thinking' (Subramanian et al., 2009).

3.2.3 Longitudinal or cross-sectional study design?

A second crucial study design issue for my research is that all the questions require investigation of changes over time. But how do I account for changes over time? I have already highlighted that the UK census is appropriate data for investigating the extent that ethnic inequalities in economic activity vary geographically (research question 1). But are the census data comparable over time? And which individual level data are available for research questions 2-5? These issues are addressed in this section of the chapter.

As I discussed in the Literature Review, when people are surveyed just once, this type of data is called a cross-section, as it provides an insight into their lives at a particular point in time. Cross-sectional data does not tell us anything about how an individual's life-chances change through time. This is because the way in which the census is available does not normally link the same individual's responses over time. The type of survey that does link the responses of individual's at different points in their lives is called a 'longitudinal' survey. Repeatedly asking the same questions through time enables researchers to investigate temporal trends.

However, this does not rule out the census for addressing changes over time in research question 1. This is because the census is repeatedly asking many of the same questions through time. Importantly, the sample is inherently nationally representative. Although individual's responses are not normally linked through time at the individual level, I can be certain that a large proportion of people who were in one census (e.g. in 1991) were also the same people in the census ten years later (e.g. in 2001). As research question 1 is interested in aggregate, or group-level change through time (i.e. how an ethnic group does, not how a person of a particular ethnic origin does), analysis of repeated cross-sections of the census are appropriate. This is conditional on the questions and geographical scales staying reasonably consistent over time.

So, what other data is available apart from the census? The Fourth National Survey of Ethnic Minorities is an individual-level dataset of many ethnic minority groups in England (http://www.esds.ac.uk/findingData/snDescription.asp?sn=3685). It contains information on socioeconomic position and other variables which have been shown to be related to social mobility (e.g. education). However, this data was not appropriate for answering question 1 because it does not contain ecological (geographical) data. Also, since it is cross-sectional and not repeated, there is no way to actually measure social mobility. For these reasons, the Fourth National Survey of Ethnic Minorities was not used.

The Labour Force Survey (LFS: http://www.esds.ac.uk/government/lfs/) and General Household Survey (GHS: http://www.esds.ac.uk/government/ghs/) are annual surveys of a nationally representative population. Both contain lots of data on socioeconomic position (especially the LFS, which includes income). However, both the LFS and GHS suffer from not containing small scale geographical data. This makes the LFS and GHS useful for tracking changes at the national level and across large regions, but not for small areas like neighbourhoods. Meanwhile, the LFS and GHS are available at the individual level. However, they are not tracking the same people over time. This means that the LFS and GHS are not suitable for addressing any of my research questions.

The 1991 and 2001 Sample of Anonymised Records (SARs) are 1% and 2% samples derived from the UK census in each respective year (http://www.ccsr.ac.uk/sars/). SARs are available on the individual level, but the geographical data is quite large. This means that SARs were not suitable for addressing question 1. Furthermore, the SARs in 1991 were not linked to those in 2001, which meant it was not possible to measure social mobility at the individual level. This meant that SARs were not appropriate for addressing research questions 2-5 either.

In conclusion so far, only the census has been identified as suitable for addressing research question 1. No data, however, has been shown to be adequate for questions 2-5 so far. This is mainly because, I need to be able to measure the change in socioeconomic position within a person's working lifetime: his/her intragenerational social mobility. In other words, I must be able to identify an individual person who has been asked the same questions repeatedly in different years. This type of data is a longitudinal study.

There are several nationally representative longitudinal studies in the UK. A study with at least two waves of data collection is necessary for my research. The British Household Panel Survey (BHPS) is an excellent example of a longitudinal study (http://www.iser.essex.ac.uk/bhps). A nationally representative sample of approximately 10,000 individuals were surveyed in 1991, and then re-surveyed every year ever since, although there is some loss of follow-up ('attrition') due largely to international migration, deaths and some people who could not be traced/refused to take part. There is a vast range of data on socioeconomic position and other characteristics. The small scale geographical location of each individual is also known every year. Unlike the census and other major surveys in the UK, the BHPS also includes a lot of questions on income. Therefore, BHPS would have been the ideal data to examine social mobility through time and the effects of individual and neighbourhood characteristics. However, as the BHPS has a small nationally-representative sample size of 10,000 in 1992, only 5% were individuals from a non-White ethnicity (500 people). Since the objective of my research is to explore ethnic inequalities in social mobility for different ethnic groups (instead of just White versus non-White), the BHPS was not suitable for addressing questions 2-5.

Like the BHPS, other UK-based longitudinal studies such as the 1958 and 1970 birth cohorts contain few non-White individuals. An annual longitudinal survey that does contain large numbers of individuals in non-White ethnic groups is the Millennium Cohort Study

(http://www.cls.ioe.ac.uk/text.asp?section=000100020001). However, this data was not suitable because the participants were not yet of working age.

A longitudinal survey that does have information on socioeconomic position, small scale geography and large numbers of ethnic minority groups is derived from the census. The ONS LS (http://www.ons.gov.uk/about/who-we-are/our-services/longitudinal-study; Hattersley and Creeser, 1995) is a nationally representative longitudinal study, like the BHPS. It contains 1% of the population of England and Wales, covering approximately 550,000 individuals. Even if only about 5% of the population in 1991 were from a non-White ethnic origin, this would still give a sample size of nearly 30,000 non-White individuals. This sample size is the best available to answer research questions 2-5. It is also linked to small scale geographical data, which is another necessary requirement of my research. Like the census from which it is taken, the ONS-LS follows individuals up every 10 years. Specifically, the ONS LS covers the period between 1971, 1981, 1991 and 2001. This means that the ONS LS is not only the most appropriate, but the only longitudinal survey available in the UK with which to address research questions 2-5.

3.2.4 Summary

In this section I asked: *what type of data is required and what is available for my research questions?* It is clear that data is available in different formats, such as ecological and individual level design. A survey conducted at a single time-point, whether ecological or individual, is referred to as a cross-sectional study. Cross-sectional studies can tell us something about the circumstances of participants at a particular time point, but cannot be used to track changes through time at the individual level. If there is more than one cross-section through time and the questions asked stay the same, longitudinal trends can be examined at the group level. Using the UK census as repeated cross-sections, I will be able to answer the first research question.

A strength of using the census is the sample size and range of geographical information. However, a limitation is that the data is only available ecologically. This means that social mobility at the individual level cannot be analysed. The ONS LS, a 1% sample of every census linked through time at the individual level between 1971 and 2001, was identified as the only longitudinal data source that offers the possibility for multilevel analyses of ethnic inequalities in social mobility and potential influences of neighbourhood characteristics. In the next section, I will discuss the UK census and the ONS LS in more detail.

3.3 The UK Census

3.3.1 Introduction

The census is a key data source for social scientists in the UK, providing some of the most detailed demographic information available on a range of issues such as deprivation, household composition, economic activity and social class (Coombes, 1995). This section will discuss these questions and others that remain unanswered, such as how is ethnicity defined? What measures of socioeconomic position are available to investigate social mobility? How is neighbourhood measured? And to what extent are the census and ONS LS ready to use, or is some sampling and data manipulation required before analysis?

3.3.2 Ethnicity

The concepts of 'ethnicity' and 'race' are often used interchangeably or combined within the academic literature, with references often made towards 'race/ethnicity' of populations (e.g. (Sampson, 2003)). It is also quite common for papers to be titled "race, ethnicity and …" (e.g. (Bean and Bell-Rose, 1999, Healey, 2005, Rosen, 1959, Smith, 2001). However, 'ethnicity' and 'race' have not always meant the exactly the same thing. In this section, I discuss what is meant by the concept of ethnicity and outline the way in which it is defined by the census and ONS LS data.

'Ethnicity' is derived from the Greek word of *'ethnos'*, which is to mean 'a nation' (Bhopal, 2004). In some ways, ethnicity is the creation of social boundaries between individuals and a form of group identification defined by the relative material conditions and social practices. It is supposed that individuals within a group are more similar than those in different groups, though this is not always the case (Giddens, 2009). Some of these characteristics are language, cultural practices, traditions, geographical and ancestral origins, and shared feelings of identity. Therefore, ethnicity is a relational concept rather than categorical, and likely to change over time (McDowell and Sharp, 1999, Pieterse, 1997). However, this does not stop researchers and policy makers attempting to categorise ethnicity; a practice that has featured in every UK census since 1991.

On the other hand, 'race' is a highly debated term in the social sciences. This is due to its usage in the early 19th century to supposedly differentiate (based upon poorly defined and false evidence) between biological 'species' of humans, though this line of thought has subsequently declined since the 1950s (Senior and Bhopal, 1994, Bhopal, 1997). Although 'race' is now appreciated as a social construction, like ethnicity and particularly in US-based academic literature, its use still

has a bad reputation because of previous misuse in Europe (Bhopal, 2004). In comparison, 'race' is more acceptable possibly because it is the term used by the Census Bureau in official reports.

Therefore, my research will use the term *ethnicity* in reference to potential social and cultural, but not any biological, differences. I will only use the term ethnicity, but not race.

The UK census in 1991 was one of the first to include a question on ethnicity in the UK (see Table 3-1). It allowed the respondent to self-classify according to a small set of categories, or to indicate their own if they were only able to report "Black-Other" or "Any other ethnic group". Before 1991, country of birth was used to proxy ethnicity or to derive a measure of immigrant versus native born individuals. One reason that this question was asked was in appreciation of the growth of the ethnic minority populations in the UK and an aspiration amongst academics and policymakers to gain a great understanding of socioeconomic variation between and within ethnic groups (Aspinall, 2000, 2010).

Table 3.1: Census questions on ethnicity: 1991 (Source: Platt et al., 2005)

1991

Ethnic Group

Please tick the appropriate box

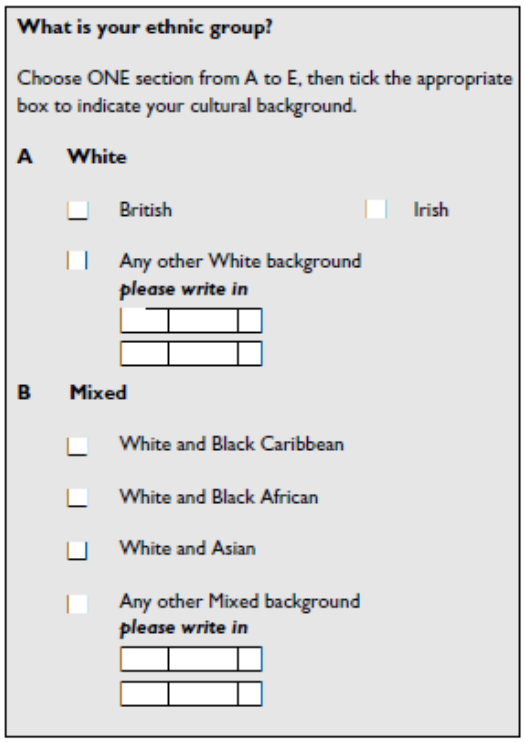
If the person is descended from more than one ethnic or racial group, please tick the group to which the person considers he/she belongs, or tick the 'Any other ethnic group' box and describe the person's ancestry in the space provided

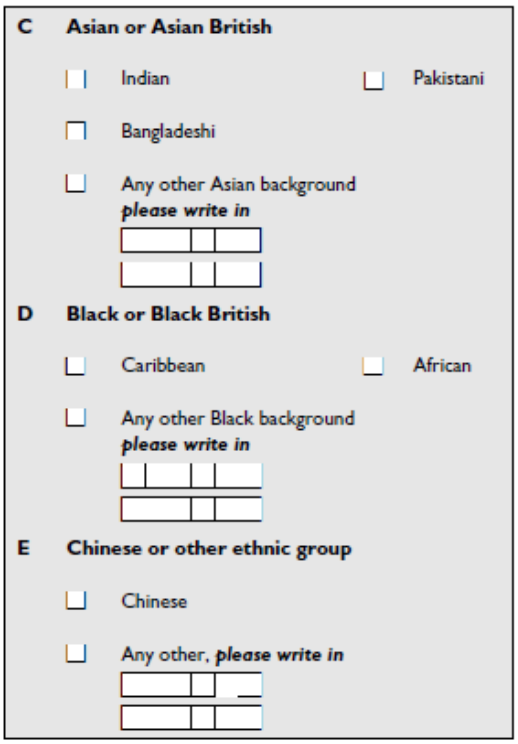
White ☐ 0
Black-Caribbean ☐ 1
Black-African ☐ 2
Black-Other ☐
please describe

Indian ☐ 3
Pakistani ☐ 4
Bangladeshi ☐ 5
Chinese ☐ 6
Any other ethnic group ☐
please describe

Table 3.2: Census questions on ethnicity: 2001 (Source: Platt et al., 2005)

2001





The 1991 ethnicity question was the first attempt to count the different migrant groups that had come to the UK, mostly since the mid-20th century. The question was motivated by a substantial increase in immigrants in the UK since World War II. This was because of mass migration of people from the West Indies, India, Pakistan, Bangladesh and other commonwealth countries were needed to fill labour shortages in the UK (Phillips, 1998).

However, the 1991 census question on ethnicity was criticised for being out of date, and was subsequently changed for the 2001 census (see Table 3-2). In the mid-20th century, most immigrants to the UK came for jobs, often through overseas recruitment programmes (Peach, 1968, Robinson, 1980). Immigration controls were tightened from 1962 onwards and the number of economic migrants from these countries to the UK decreased substantially. The proportion of all migrants for economic reasons decreased, but the proportion of refugees increased (Phillips,

1998, 2006). There has also been a recent wave of new economic migrants from countries in Central and East Europe (Champion, 1994, Pemberton, 2009, Phillips, 1998, Stenning and Dawley, 2009). By the 2001 UK census, the ethnicity question had been re-worded with an expanded set of possible answers. 7.9% of the UK population self-reported as part of an ethnic minority group. Indians, Pakistanis, Black Caribbeans and Black Africans were among the largest ethnic minority groups. A major difference between the 1991 and 2001 ethnicity questions was the introduction of a 'Mixed' category in the most recent. The 'Mixed' group refers to individuals identifying with more than one group (e.g. 'White and Asian') (Aspinall, 2009, 2010).

From this outline, it is clear that the concept of ethnicity is not straightforward and quite difficult to measure. The ethnic composition of UK society can change over time through new migration patterns and social circumstances. Choosing the best way to classify ethnicity is not easy. A study of responses to the census ethnicity questions with the ONS LS showed that nearly one in four Black Caribbeans and Black Africans in 1991 changed their ethnicity status by 2001 (Platt et al., 2005). People who reported being White, Chinese, Indian, Pakistani or Bangladeshi in 1991 were 90% likely to report the same status in 2001. So, I must take this information into account when classifying ethnicity in my own research.

Since I am going to use a repeated cross-sectional ecological study design for answering question 1, I will have to make use of the ethnicity question in each census (because the data are not linked at an individual level). The responses to the 1991 and 2001 questions therefore require harmonising. One method would be to drop any ethnic groups that do not appear in both census questions, like many of the 'Other' groups. Instead, I use the harmonisation approach recommended by Platt et al (2001) in Table 3-3, which aggregates responses to the 2001 census question on ethnicity to the categories available in 1991.

Table 3.3: Harmonisation of responses to 1991 and 2001 census questions on ethnicity (Source: Platt et al., 2005)

Eight-category ethnic group classification

Presentation group	1991 categories	2001 categories
White	White	White British White Irish White Other
Indian	Indian	Indian
Pakistani	Pakistani	Pakistani
Bangladeshi	Bangladeshi	Bangladeshi
Black Caribbean	Black Caribbean	Black Caribbean
Black African	Black African	Black African
Chinese	Chinese	Chinese
Other ethnic group	Other Black Other Asian Other	Other Black Other Asian Other White and Black Caribbean White and Black African White and Asian Any Other Mixed

This leaves how to measure ethnicity in the ONS LS. Although ethnicity was not measured before 1991, people in 1981 or 1971 who also took part in 1991 or 2001 can be assigned to an ethnic group. Those ONS LS members who took part only in 1971 or 1981 cannot be assigned an ethnic group. However, the bigger issue is which ethnicity question to use for those who appear in 1991 and 2001? I chose to adopt responses to the 1991 census question as my key ethnicity measure, as Platt et al (2001) reported that the statistical method (imputation) used to predict missing ethnicity in 2001 by the Office for National Statistics (ONS) was unreliable. The classification of ethnic groups is illustrated in Table 3-3.

3.3.3 Social mobility

Various conceptual approaches to measuring social mobility were outlined in the Introduction. So far, it is clear that for research question 1, social mobility at the individual level of a person cannot be measured using ecological data. However, comparing rates of economic activity and inactivity over time for specific group will give some indication of social mobility. For the other research questions, social mobility will be assessed by examining changes in an individual's socioeconomic position intragenerationally (comparing two points in their lifetime). As the data which will be used to answer each question has been identified, in this section I explore what measures of socioeconomic position are available for analysis.

Economic activity and inactivity

It was clear from the Literature Review chapter that many studies of neighbourhood effects have focused upon one employment/unemployment binary dependent variable (Musterd and Andersson, 2005, 2006, Musterd et al., 2003, Buck, 2001, McCulloch, 2001, van Ham and Manley, 2010). I also discussed evidence that ethnic minority groups in the UK continued to face unfair disadvantage and discrimination in the labour market (Li and Heath, 2008, Heath et al., 2000b, Modood et al., 1997, Berthoud, 2000, Blackaby et al., 2002, Simpson et al., 2009). International migrant generation is also an important variable in this respect, accounting for differences in labour market outcomes among individuals within the same ethnic group (Heath and Smith, 2003, Heath et al., 2000b). These ethnic inequalities in the labour market are widely referred to as 'ethnic penalties' (Berthoud, 2000, Heath et al., 2008a). Other research has suggested that unemployment is related to social exclusion (Burchardt et al., 1999, Kieselbach, 2003). So, a focus on employment and unemployment is reasonable.

However, there are many different categories of economic status that people in England can report in the census. Broadly, economic status is divided into two groups: i) economically active; ii) economically inactive. 'These groups are subdivided into smaller groups - e.g. in employment, self-employed and unemployed and retirement, home-makers, permanently sick.

3.3.3.1 The economically active

The economically active includes categories like: full-time employment, part-time employment, self-employment, unemployment, etc. The censuses asked people to report whether they had a job, or were looking for a job, during the official census week. In the 1991 and 2001 censuses, people who were at least 16 years old were required to answer questions on economic activity. In 1991, there was no upper age limit. However, in 2001, only people aged between 16 and 74 were allowed to answer on economic activity (in line with the International Labour Organisation's (ILO) definition). This means that people over 74 years old will be included in 1991 answers, but not in 2001, which may lead to comparability problems. People who were working in the Census week, or actively looking for a job (or were due to start work within 2 weeks), were classified as economically active. Unlike 1991, students in 2001 could be classified as economically active if they were also in some form of employment.

3.3.3.1.1 Employment

Any person who was in paid work during the census week in 1991 and 2001 was identified as employed. The census definition of paid work included anybody who was temporarily or

casually employed even for a small number of hours only per week. It also included: 1) people on a Government-sponsored training scheme; 2) people who should have been working but were absent due to temporary sickness or holiday; 3) women on maternity leave; 4) and those who were in paid or unpaid work for a family business.

3.3.3.1.2 Self employment

Self employment was identified within the Literature Review as related to ethnic minority concentrated neighbourhoods. So, it was theoretically important to investigate self employment separately from total employment. Self employed people were sub-categorised in each census, but these sub-categories were different in 1991 and 2001. In 1991, self employed people could be either those with, or those without employees. This was not the case in 2001. In 2001, self-employed people were sub-categorised as either part-time or full-time, which was not the same as 1991. For my research, self-employed people in 1991 and 2001 were not further sub-categorised in order to keep consistent definitions over time.

3.3.3.1.3 Unemployment

People who were looking for work and available to start a new job within 2 weeks were classified as unemployed in 2001. The definition of unemployment in 1991 was slightly different. Unemployed people in 1991 also included those who were unable to work due to temporary sickness, or people waiting to take up a job that they had already accepted (unlike in 2001).

3.3.3.1.4 The economically inactive

Importantly, economically inactive people are those people who are not looking for work, such as homemakers (doing housework/looking after the household/bringing up children), students, the retired and those with long-term illness. Therefore, the census does not mix those who were in work or looking for it (the economically active) with those who were economically inactive. Economically inactive people were categorised as either retired, a student, long-term sick, or not working for other reasons such as homemaking. In the census, information is only available for the aggregated 'Other Economically Inactive' category. However, a specific category for homemakers was available in the ONS LS which I used for analysis of questions 2-5.

Gendered differences in the likelihood of being in full-time homemaking supported the need for further investigation. Women are significantly more likely than men to adopt the role of the homemaker. This can lead to a larger number of transitions in economic activity and inactivity among women than among men (Lindley et al., 2006, Dale et al., 2006). For example, a man who loses his job is often classified as unemployed as he is likely to be actively looking for a job. In comparison, a woman who loses her job may also look for a job (and be classified as unemployed), but alternatively may also be likely to take up a homemaking role (economically inactive). Therefore, my research focused on economic activity (employment and unemployment) and economic inactivity (for homemaking reasons). Sample sizes on self employment were reasonably large in the censuses, so I also investigated self employment in answer to research question 1. However, as the number of self employed people in an ethnic minority group in the ONS LS was low, I did not consider this as a dependent variable for questions 2-5.

3.3.3.2 Social Class

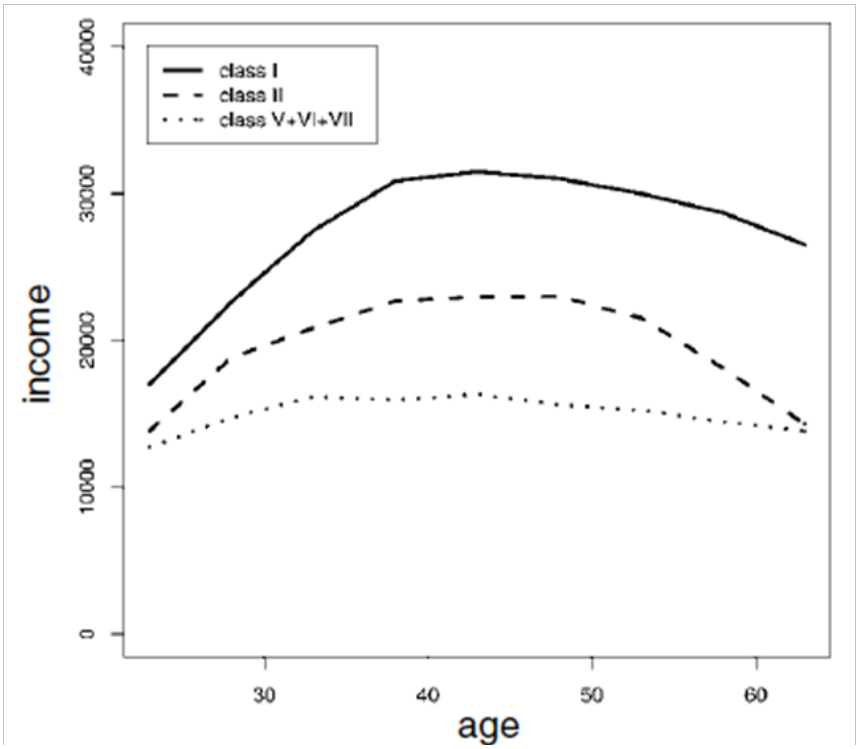
An alternative to income for measuring social mobility, used particularly by sociologists, is social class (Goldthorpe et al., 1987, Goldthorpe and McKnight, 2006, Rose, 1998). However, social class is not just an alternative term for income. Social class represents relations between people. Therefore, social class mobility may mean something different to income mobility. Social classes are recognised by grouping occupations into categories based upon some form of relationship, such as working relations between employers and employees, the salaried and the waged labour force, the manual and non-manual occupations.

Some types of occupations (e.g. politician or international business person) may have more prestige, allow networking over wider geographical areas, and facilitate access to material benefits (e.g. health insurance and education). Other occupations (e.g. lorry driver or milkman) may not have such benefits and resources, and may be rather more solitary with limited social interactions (Rose, 1998). Furthermore, some types of occupations allow individuals to have some control over their working time and what they do with it (e.g. a company manager or a university professor). Some other types of occupation may be very prescriptive and restricting (e.g. a telephone operator or a cleaner). Some occupations may enjoy a high degree of job security (e.g. a doctor or a dentist), but others may be temporary and highly sensitive to economic conditions (e.g. sales person) (Galobardes et al., 2006). In other words, social classes are based upon occupations that share some aspect of social, or in Goldthorpe's terms, employment relations (Goldthorpe and McKnight, 2006).

Since people in occupations having more responsibility (i.e. high social class) are likely to be better paid, I would therefore expect there to be some association between social class and income. Recent research has shed some light on this association (Chan and Goldthorpe, 2004,

2007). Chan and Goldthorpe (2007) demonstrated the different trajectories in income between people in different social classes over time (Figure 3-1). In general, people in higher social classes tended to have higher incomes. However, this was not consistently the case, as the gap in income between people in high and low social classes is small for younger people. The income gap then gets bigger as people grow older.

Figure 3-1: Divergent income trajectories, by EGP social class (Source: Chan and Goldthorpe, 2007)



The concept of social class, therefore, could be argued to proxy income to some extent. However, my view is that social class might also represent a value-added approach to investigating social mobility. This is because the concept of social relations is an important dimension in how social classes are measured. Social class not only helps us understand whether a person was likely to be

paid a high or low income. Social class also tells us something about how much control a person is likely to have had over their work time, and whether their occupation had a guaranteed salary (e.g. permanent position or long term contract), or was paid casually (e.g. by the hour).

Because there is a relationship between social class and income, people may expect to find similar results when measuring social mobility. However, since social class tells us about social relations between people too, it is possible that different results could be found when measuring social mobility. For example, Blanden et al (2005) suggested more recent generations of people in the UK experienced lower levels of social mobility, as measured by intergenerational change in income. In comparison, Goldthorpe and Jackson have used the same data (the 1958 and 1970 UK Birth Cohorts) and repeated the investigation, using social class instead of income (Goldthorpe and Jackson, 2007). Goldthorpe and Jackson found no evidence for a decline in intergenerational social class mobility.

This fits with the results of earlier research on social class mobility (Goldthorpe et al., 1987). Therefore, clearly there is a relationship between social class and income, but it is still possible to get different results depending upon which type of measure is analysed. Furthermore, it may also be possible to get different results by the way that social classes are divided up (e.g. low versus high, or low versus middle versus high, or more complex combinations). Clearly, there are pros and cons to using social class and income mobility. However, as there are measures of social class in the ONS LS but no measures of income, I will use social class to address research questions 2-5.

3.3.4 Neighbourhood deprivation

Ethnic minority immigrants have been denied access to resources, housing and jobs, and forced to live in some of the most deprived areas of inner cities (Phillips, 1998). Today, ethnic minorities are over-represented and geographically concentrated within some of the most deprived neighbourhoods of the UK, as I have discussed in the Introduction and Literature Review. In this section, I discuss how deprivation can be measured.

Many measures of neighbourhood deprivation in the UK have been created in the last thirty years (Carstairs and Morris 1989a; Jarman 1983; Noble, Wright, Smith, and Dibben 2006; Townsend 1987). The Townsend index was one of the first to be developed. It used four variables from the census in 1981 in its construction: i) the percentage of households without a car; ii) the percentage of overcrowded households; iii) the percentage of households not owner-occupied; iv) the percentage of people unemployed (Townsend, 1987). Over time, the way of measuring deprivation has become more complicated. For example one of the most recent measures is the Index of Multiple Deprivation. This measure was based on a very large number of data sources which were grouped into various domains of deprivation, including: i) income; ii) employment; iii) housing; iv) health; v) education, skills and training; vi) geographical access to services; and vii) crime. Unlike the Townsend index and similar measures (e.g. the Carstairs index), the Index of Multiple Deprivation does not depend totally on the census for data. Therefore, it can be updated more often than every 10 years which is an advantage (Morgan and Baker 2006).

It is important to note that these deprivation measures often tell us something about the circumstances of people within neighbourhoods. However, deprivation measures do not always tell us something about the actual local physical environment, such as whether buildings were well maintained or not (MacIntyre et al., 1993). Furthermore, although the Townsend index takes

into account how many households do not own a car within a particular neighbourhood, it is making the assumption that not having a car is an indicator of poverty. This may be true in many contexts where not having a car is a significant disadvantage, especially in rural areas (Martin et al., 2000). However, within a city where public transport is frequent and easily accessed, many people may choose not to own a car as it is not perceived to be necessary.

It is also important to acknowledge ecological fallacy. As discussed in the previous section on neighbourhood definition and measurement, larger geographical boundaries are needed in rural areas which are sparsely populated. But these larger geographical boundaries are likely to contain more varied populations – deprived and affluent people. This means that the average level of deprivation calculated in rural areas may hide areas which are actually quite wealthy, and others that are very deprived (Haynes and Gale 2000).

My choice of neighbourhood deprivation measure is constrained by the census and the ONS LS. As the 2011 census is not yet available for analysis, I am limited to the 1991 and 2001 censuses to compare through time. Although the sophistication of the Index of Multiple Deprivation would have been preferable, it was only available from 2000 onwards. This means it was not appropriate for my analysis as I need to be able to measure deprivation in 1991 too. As an alternative, the Townsend index can be calculated in 1991 and 2001 using census data, so this was selected as the measure of deprivation in my research. I choose the Townsend over the Carstairs index because Carstairs was developed specifically for the Scottish context, and my focus is on England.

The Townsend index is calculated as follows (with full instructions produced by Paul Norman and available online: http://cdu.mimas.ac.uk/related/deprivation.htm). The four census variables for calculating the Townsend index were downloaded for every ward in England from the census online website (http://casweb.mimas.ac.uk/) and converted into percentages. Both the

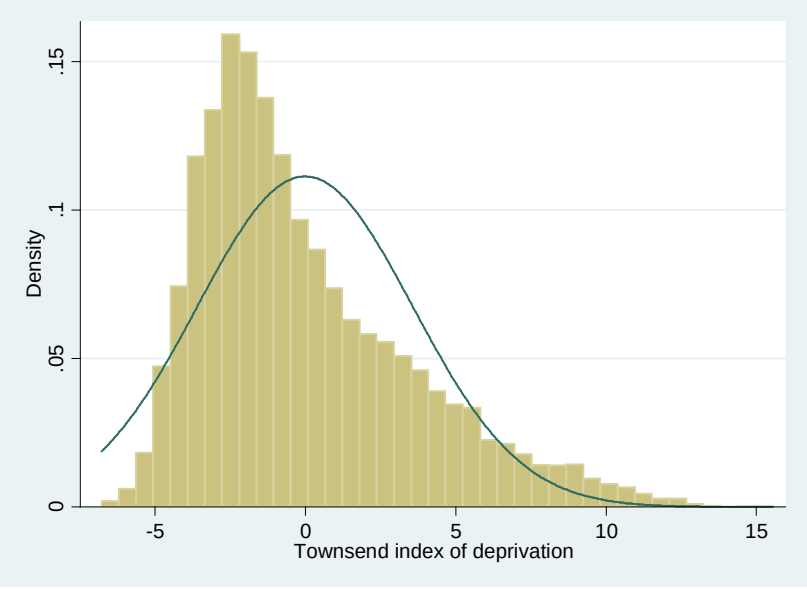
unemployment and overcrowding percentages are known to have skewed distributions, so they were transformed using natural logarithms (logs) to make them follow the normal distribution more closely. The logged unemployment and overcrowding percentages and the percentage of no-car ownership and non-owner occupied households were then converted into z-scores to make each scale comparable. Z-scores were calculated by subtracting the mean value from each scale and then dividing by the standard deviation:

Z-Score = (x – mean) / standard deviation

Where x is the percentage of one of the variables within a ward, the mean and standard deviations are calculated from the full distributions of each percentage variable. Each of these z-scores are then added together to create the overall Townsend index, because z-scores should resemble a normal distribution with zero as the central score. Townsend scores of zero indicate neighbourhoods with an average level of deprivation. Scores above zero indicate above average deprived neighbourhoods. Scores below zero indicate more affluent neighbourhoods. Further details on the Townsend index I calculated for England in the 1991 census are shown in Table 3-4.

Table 3.4: Descriptive statistics and histogram for the Townsend deprivation calculated at the ward scale in the 1991 census (Source: created by the author, using 1991 census data and instructions from http://cdu.mimas.ac.uk/related/deprivation.htm)

Number of wards		8519
Mean		-0.02
Standard deviation		3.58
Min		-6.78
Max		15.54
Variance		12.84
Skewness		1.00
Kurtosis		3.62
Percentiles		
	1%	-5.28
	5%	-4.35
	10%	-3.77
	25%	-2.65
	50%	-0.94
	75%	2.01
	90%	5.22
	95%	7.23
	99%	10.47



3.3.5 Neighbourhood ethnic composition

The Literature Review raised considerable theoretical debate that there may be positive and negative consequences of the ethnic patterning of neighbourhoods on social mobility. It is not my objective to re-evaluate those concerns which were outlined in the Literature Review. However, more attention is needed on the various ways in which neighbourhood ethnic composition has been measured. But before discussing the calculations, it is important to understand some of the history in which these measures have been developed.

Historically, the measurement of the ethnic composition of places has often been described using 'segregation' indices (Simpson, 2007). Much of the early research in this area was developed by the Chicago School of the early-mid 20th century, focusing on social and spatial relationships between different ethnic groups (e.g. (Wirth, 1928, Park, 1914)). It was Robert Park, Ernest Burgess and Louis Wirth who were leaders of the Chicago School's research, using maps to show the ethnic composition of Chicago. Park et al challenged an anti-immigrant public opinion common in 1920s Chicago, by proposing the theory of spatial assimilation. They believed that the segregation of ethnic groups in Chicago was largely voluntary and only a temporary phenomenon (Brooks-Gunn et al., 1997). Park et al expected the segregated communities to disperse through a process of contact with the mainstream public and participation in the wider housing and labour markets (the process of spatial assimilation). In other words, the ethnic minorities would eventually become part of the mainstream public over time.

Although many ethnic groups did disperse through time, others did not. The segregation of Black Americans became a permanent feature of Chicago's residential geography (Brooks-Gunn et al., 1997). Some suggested that many ethnic groups were able to disperse, economically integrate and assimilate because they were from White European origins (Lieberson, 1980, Nagel, 2002).

In comparison, Black Americans faced discrimination in the housing and labour markets which were significant barriers to assimilation. This resulted in a residential geography of concentrated disadvantage (Wilson, 1987) and ethnic 'hyper-segregation' (extremely high levels of segregation, which some refer to as 'ghettos') (Massey and Denton, 1993). Similar discrimination against non-White ethnic groups has also been reported in the UK (Phillips, 1998). Additionally, US neighbourhoods dominantly composed of White people were often resistant to the desegregation of Black Americans from ethnically concentrated and deprived neighbourhoods. It is suggested that many White residents viewed the neighbourhoods in which they lived as a source of social status and material advantage. They believed that advantage would be threatened by the presence of non-White ethnic groups moving in (Massey and Denton, 1993, Farley et al., 1994, Ellis et al., 2004).

Due to this background, many of the statistics to measure segregation which were developed throughout that period have often been utilised in studies assuming that segregation is a naturally bad thing (Peach, 1996b). Simpson (2004) argues that some previous research has also tended to assume that social and spatial assimilation is always a desirable outcome (Simpson, 2004). As Simpson (p.664) goes on to discuss:

> *"They [studies of ethnic segregation] have also been fundamentally flawed on technical grounds. They rarely study change over time; they have confused population growth with population distribution; they have falsely compared segregation in different regions; they have not studied migration which should be at the heart of any study of segregation."*

Measures of ethnic segregation which have been commonly used include the index of dissimilarity (e.g. Simpson, 2004) and the index of isolation (e.g. Johnston et al., 2005). The index of dissimilarity describes how evenly distributed one group is to another. The index of isolation describes how concentrated one group is compared to another; it is actually highly correlated with the percentage of an ethnic group within a neighbourhood. One problem with

these measures is that they only compare one ethnic group with another; they do not measure ethnic diversity. To account for the realism of ethnic diverse contexts, other 'multi-group' measures of ethnic segregation have been created, such as the Information Theory Index (Reardon and Firebaugh, 2002). Some indices of *diversity* have been applied from other disciplines, such as the Herfindahl index used often by political scientists (Putnam, 2007). Indices of ethnic diversity indicate the extent to which a person is likely to meet somebody from any other different ethnic group within a defined geographical area. However, due to the more complex nature of their calculation and the apparent popularity of the two-group 'segregation' measures, indices of diversity are rarely found within the literature (Reardon and Firebaugh, 2002). In my research, I use measures of ethnic concentration (co-ethnic, and *other non-White*) and ethnic diversity (non-White concentration and the Herfindahl index).

3.3.5.1 Co-ethnic concentration

In this case, I chose to use measures that are not complex to calculate, and not difficult to interpret, and I construct them at the ward scale, which is the smallest available for use in the census and ONS LS. The Literature Review chapter raised the possibility that living among people of the same ethnic group could influence social mobility. Using census data in 1991 and 2001, I measure the percentage of one ethnic group within a ward, compared to people of any other ethnic group. I call this measure the 'co-ethnic concentration' and it is calculated using

Co-ethnic concentration = $100 \times (b_i / t_i)$

where b_i is the number of people from the ethnic group of interest within the ward $_i$, and t_i is the total number of people within the ward $_i$ from any ethnic group. It ranges theoretically from 0 to 100% (though it is unlikely to reach 100% in the UK except for the White ethnic group), with

higher percentages reflecting greater co-ethnic concentration within a ward. Table 3-5 illustrates descriptive statistics for the co-ethnic concentration for each ethnic group in the 1991 census.

Table 3.5: Descriptive statistics of the co-ethnic concentration measure (Source: created by the author using 1991 census data)

	White	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Chinese
Number of wards	8519	8519	8519	8519	8519	8519	8519
Mean	96.15	1.05	0.51	0.20	0.62	0.29	0.22
Standard deviation	8.47	3.69	2.42	1.47	2.01	1.04	0.35
Min	9.79	0	0	0	0	0	0
Max	100.00	67.02	52.77	60.70	30.12	26.58	5.56
Variance	71.78	13.62	5.87	2.15	4.04	1.07	0.12
Skewness	-4.16	8.73	10.18	21.63	5.91	7.42	4.36
Kurtosis	23.87	105.60	140.62	625.43	46.55	90.58	34.39
Percentiles							
1%	55.38	0	0	0	0	0	0
5%	79.12	0	0	0	0	0	0
10%	89.80	0	0	0	0	0	0
25%	97.50	0.04	0	0	0	0	0
50%	99.03	0.18	0	0	0.07	0.04	0.12
75%	99.51	0.58	0.14	0.08	0.24	0.12	0.27
90%	99.75	1.95	0.67	0.29	1.16	0.36	0.54
95%	99.85	4.19	1.92	0.60	3.27	1.44	0.82
99%	100.00	18.26	11.46	3.22	11.19	5.66	1.68

3.3.5.2 Other non-White ethnic concentration

For ethnic minority groups, I consider the potential importance of living with people from other ethnic minority groups (ethnic minority competition theory, as discussed in the Literature Review). I calculated the percentage of the ward population which is not White and not part of the test ethnic minority group. For example, for Black Caribbean people, the other-ethnic group

concentration would be calculated using people in the ward who were not Black Caribbean and also not White. The formula for this calculation is as follows

Other-ethnic concentration = $100 \times [(t_i - w_i - b_i) / t_i]$

where t_i is the total number of people from any ethnic group in the ward $_i$, w_i is the total number of White people in the ward, and b_i is the total number of people in the test ethnic minority group in ward $_i$. 'Other-ethnic concentration' can range from 0 to nearly 100%. 0% indicates that there were no other people within the ward from another non-White ethnic group outside of the test ethnic minority group. Higher percentages indicate the presence of other ethnic minority groups (see Table 3-6).

Table 3.6: Descriptive statistics of the other-ethnic concentration measure (Source: created by the author using the 1991 census)

	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Chinese
Number of wards	8519	8519	8519	8519	8519	8519
Mean	2.80	3.34	3.64	3.23	3.56	3.63
Standard deviation	6.20	7.31	7.99	7.09	7.83	8.30
Min	0	0	0	0	0	0
Max	70.99	78.82	89.86	86.63	88.50	90.19
Variance	38.38	53.47	63.88	50.27	61.25	68.82
Skewness	4.22	4.30	4.23	4.65	4.38	4.26
Kurtosis	24.22	25.60	24.90	31.20	27.10	25.08
Percentiles						
1%	0	0	0	0	0	0
5%	0.11	0.14	0.14	0.12	0.13	0.12
10%	0.19	0.24	0.25	0.22	0.23	0.21
25%	0.39	0.47	0.48	0.44	0.46	0.41
50%	0.76	0.92	0.93	0.89	0.92	0.82
75%	1.80	2.26	2.42	2.19	2.39	2.23
90%	6.64	8.20	9.70	8.51	9.49	9.59
95%	15.05	17.87	19.35	16.32	18.84	20.16
99%	33.49	38.82	42.29	36.88	41.64	44.19

3.3.5.3 Non-White ethnic concentration

I also explore the ethnic diversity of wards, as the majority of ethnic minorities live in urban areas in the UK (Simpson and Finney, 2009). I indirectly measure ethnic diversity by using a measure called the 'Non-White ethnic concentration'. This can be measured using

$$\text{Non-White ethnic concentration} = 100 \times \frac{(t_i - w_i)}{t_i}$$

where t_i is the total number of people from any ethnic group in the ward, and w_i is the total number of White people in the ward $_i$. The measure ranges from 0 to nearly 100%, with 0% indicating a ward entirely composed of the White group, and higher percentages indicating a greater level of ethnic diversity. Table 3-7 reports descriptive statistics for the measure of non-White ethnic concentration.

Table 3.7: Descriptive statistics for the non-White ethnic concentration measure (Source: created by the author using the 1991 census)

Number of wards		8519
Mean		3.85
Standard deviation		8.47
Min		0
Max		90.21
Variance		71.78
Skewness		4.16
Kurtosis		23.87
Percentiles		
	1%	0
	5%	0.15
	10%	0.25
	25%	0.49
	50%	0.97
	75%	2.50
	90%	10.20
	95%	20.88
	99%	44.62

3.3.5.4 Ethnic diversity – the Herfindahl index

It is possible, though rare, that a ward may contain a high non-White concentration and a high co-ethnic (minority) concentration. This means that a large proportion of the ward population would be composed by only one ethnic minority group. The measure of non-White ethnic concentration would therefore indicate that this ward would be fairly diverse, when actually it may not be in reality. A more accurate definition of ethnic diversity is the extent to which all ethnic groups are equally represented within a ward. Measuring ethnic diversity is important because it may have an influence upon local social capital (Allport, 1954, Blumer, 1958, Putnam, 2007), as discussed in the Literature Review.

Therefore, I also utilise a direct measure of ethnic diversity; the 'Herfindahl' index (Putnam, 2007, Vervoort et al., 2010). The Herfindahl index is equal to the sum of all the squared proportions of every ethnic group within a ward, and it can be calculated using:

$$\text{Herfindahl index} = \text{SUM } (b_i / t_i)^2 \ldots (x_i / t_i)^2$$

where b_i is the total number of people in an ethnic group in ward $_i$, and t_i is the total number of people within ward $_i$ from any ethnic group. The proportion of every possible ethnic group (up to x_i) that could be within the ward is calculated, squared, and summed with all the other ethnic groups.

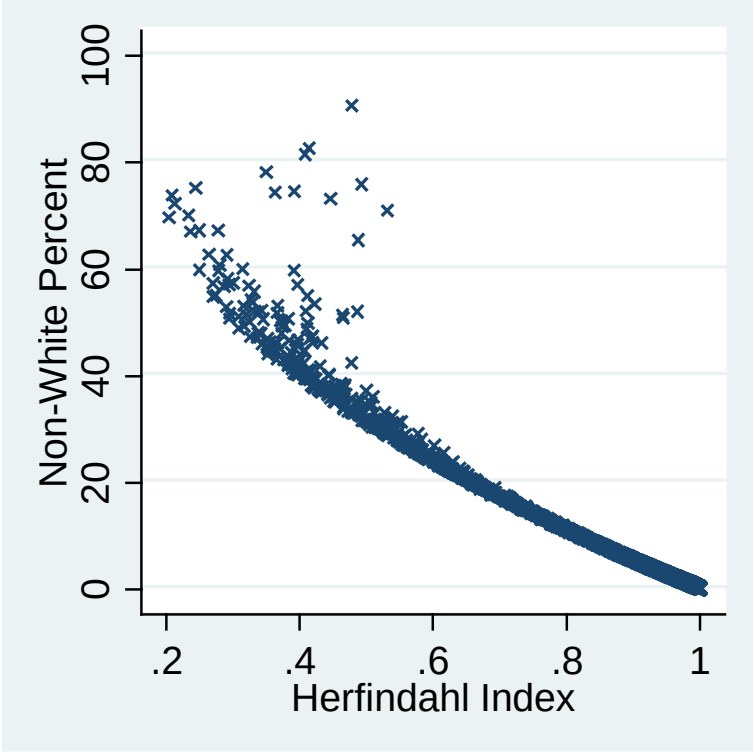
A score equals to the proportion of all possible ethnic groups reflects an ethnically diverse ward. For example: if 20 ethnic groups were equally represented within a single ward (i.e. maximum diversity), the Herfindahl index would give a score of 0.05. Higher scores on the Herfindahl

index indicate wards where there is less ethnic diversity (i.e. more segregation), and a score of 1 (the maximum score on the Herfindahl index) represents a ward where there is only a single ethnic group. For my calculation of the Herfindahl index, I used eight ethnic groups: White, Indian, Pakistani, Bangladeshi, Black Caribbean, Black African, Chinese and Other (Table 3-8)

Table 3.8: Descriptive statistics for the Herfindahl index of ethnic diversity (Source: created by the author using the 1991 census)

Number of wards		8519
Mean		0.93
Standard deviation		0.12
Min		0.20
Max		1.00
Variance		0.01
Skewness		-3.10
Kurtosis		12.82
Percentiles		
	1%	0.39
	5%	0.64
	10%	0.81
	25%	0.95
	50%	0.98
	75%	0.99
	90%	0.99
	95%	1.00
	99%	1.00

Figure 3-2: The relationship between non-White ethnic concentration and the Herfindahl Index of ethnic diversity (Source: created by the author from the 1991 census)



As expected, the relationship between the non-White ethnic concentration measure and the Herfindahl index is strong. A Pearson correlation of -0.9747 was found. As can be seen from Figure 3-2, there is a high correlation from about 0.5 to 1.0 on the Herfindahl index. However, below 0.5 of the Herfindahl index, there is some variation. Some wards have a very high level of non-White ethnic concentration, but a moderate Herfindahl index score. These are the wards where the non-White concentration is dominated by a small number of ethnic minority groups. This variation between the measures clearly illustrates the limitations of using the non-White ethnic concentration measure as a proxy for ethnic diversity, and highlights the advantages of using a direct measure such as the Herfindahl index.

3.3.6 Summary

This section of the chapter has discussed several key aspects of the UK census and how it can be used for my research. In particular, I have investigated definitions of ethnicity, social mobility, neighbourhood, deprivation, and ethnic composition. I have identified the following dependent variables for further analysis.

In the census for research question 1, I will investigate:

- Economic activity: employment, self employment, unemployment
- Economic inactivity: for other reasons (including homemaking)

In the ONS LS for research questions 2-5, I will investigate:

- Economic activity: employment and unemployment
- Economic inactivity: for homemaking reasons only

- NS-SEC social classification of occupations

I have also discussed and identified several geographical variables for further analysis:

- Government Office Regions (harmonised with 1991 Standard Statistical Regions)
- Townsend deprivation
- Co-ethnic concentration
- Other-ethnic concentration
- Non-White concentration
- Herfindahl index of ethnic diversity

What remains to be discussed is how these variables will be analysed, what sort of study designs will be operationalised, and what issues are raised for the validity of the analyses.

3.4 Statistical Analysis

3.4.1 Introduction

In this section, the strategy for the analytical chapters of my thesis will be discussed. For each question, I outline the range of statistical methods utilised, their assumptions, merits and limitations, highlight any particularly important challenges and identify some potential solutions.

3.4.2 Analytical strategy

As discussed in Chapter 2, five broad questions will be addressed (one question per chapter):

1. (Chapter 4) Are there regional and neighbourhood ethnic inequalities in economic status in the English censuses of 1991 and 2001?
2. (Chapter 5) Are ethnic inequalities in transitions in economic status linked to neighbourhood deprivation and diversity?
3. (Chapter 6) Are ethnic inequalities in social class mobility influenced by neighbourhood deprivation and ethnic diversity?
4. (Chapter 7) Are inequalities in economic status within ethnic groups associated with the deprivation and ethnic composition of neighbourhoods?
5. (Chapter 8) Are inequalities in social class mobility within ethnic groups associated with the deprivation and ethnic composition of neighbourhoods?

For question 1, I have already identified the 1991 and 2001 censuses as the data I will use. The censuses are available as a series of counts by ward, ethnic group, gender, and economic activity/inactivity indicator. Relevant denominator data (e.g. total number of people in a ward) was also available. The overall analytical strategy, with specific details of how these dependent variables were modelled and the statistical method was discussed in chapter 4 for the first research question.

For the remaining questions of my thesis (chapters 5-8), a similar analytical strategy is used for analysing the ONS LS. So to avoid repetition, I outline the strategy here. Two types of dependent variable were identified: i) economic activity and inactivity; ii) the 3-category version of the NS-SEC social classification of occupations. I compared each individual person's

economic activity and social class in 2001 with what it was in 1991. However, none of the dependent variables were measured on a continuous scale. So, alternative models were required, and the one which was particularly useful in this case was a logit regression. Logit regression can be used to test association between independent variables and a binary dependent variable (e.g. remained unemployed or found a job). This type of model is called 'binary logit regression' (Hosmer and Lemeshow, 2000).

Logit regression was also versatile enough to allow dependent variables with more than two categories (e.g. remained in low class, moved to middle class, or moved to high class). This type of model was the 'multinomial logit regression' (Hosmer and Lemeshow, 2000). Multinomial logit regression was ideally suited to analyses of social mobility which involved three possible trajectories (e.g. employed to employed; employed to unemployed; employed to homemaking). Multinomial logit regression was also used for the analyses of the NS-SEC social class, but this variable can be considered as ordinal (in the order of low, middle, and high class). To take account of this ordinal format and whether it influenced the results, I performed sensitivity analyses using ordered logit regression. Logit regression and ordered logit regression models calculated the log odds of achieving social mobility versus the log odds of remaining in the same socioeconomic position since 1991. For multinomial logit regression, separate log odds were calculated for every possible category within the same model (allowing for multiple transitions through time), always in comparison to a designated base category. I transformed the log odds (through exponentiation) to odds ratios (logit model), proportional odds ratios (ordered logit model), and relative risk ratios (multinomial logit model). These ratios described how many times more or less likely a person is of achieving social mobility compared to staying within the same economic activity or social class. Ratios above 1 indicated a greater likelihood of achieving social mobility, and ratios below 1 indicated a lower chance.

In all analyses for chapters 5-8, my strategy was to create descriptive tables that showed the general pattern of dependent and independent variables. I also calculated the univariate association (a regression model which contained the dependent variable and one independent variable only) to test whether these descriptive trends were statistically significant. Multivariate analyses were then performed by adding in new independent variables to each model until the regression was fully adjusted for all independent variables.

Significance was evaluated as the chance of rejecting a true 'null hypothesis' (i.e. there is no association between the dependent variable and the independent variable) being equal to or lower than 5%. This is the same as the p-value < 0.05 (the level at which 'statistical significance' was achieved), which was calculated automatically by the Stata software which was used for all statistical analysis.

The major differences between chapters 5-8 in terms of analysis are outlined below.

Chapter 5: this chapter focuses on inequalities in economic status mobility between ethnic groups, with a focus on neighbourhood diversity and deprivation.

Chapter 6: this chapter focuses on inequalities in social class mobility between ethnic groups, with a focus on neighbourhood diversity and deprivation.

Chapter 7: this chapter focuses on inequalities in economic status mobility within the White, Indian and Black Caribbean groups, using the full range of neighbourhood characteristics.

Chapter 8: this chapter focuses on inequalities in social class mobility within the White, Indian and Black Caribbean groups, using the full range of neighbourhood characteristics.

3.4.3 Approach to addressing Tobler's 'First Law of Geography'

According to Waldo Tobler's 'first law of geography' which states that "everything is related to everything else, but near things are more related than distant things" (Tobler, 1970). So, it may be that individuals living in the same household or neighbourhood have an influence upon each other's life-chances. This phenomenon is referred to as *spatial autocorrelation* (Jones, 1991, Jones et al., 1992). The problem with spatial autocorrelation is that it can exaggerate the importance of a neighbourhood characteristic on the dependent variable. The challenge is how to identify the neighbourhood effect, free of this spatial autocorrelation bias.

Multilevel models (e.g. (Goldstein, 2003)) have been widely used in many areas of social science to account for 'cluster' data structures. But there is debate over their validity in geography (Dorling et al., 2001). To summarise this debate, the key debate is over the 'clustered' data structure. In education, we can investigate the structure of a child in a class in a school. However, for studies of neighbourhood characteristics this requires us assume that:

i) I can identify and quantify neighbourhoods (e.g. see issues of neighbourhood definition, scale and MAUP discussed earlier in this chapter);
ii) the definition of neighbourhood means the same thing for all people in the study (e.g. do wards mean the same thing in urban and rural areas? As urban wards are much smaller than rural wards because of differences in population density).

Neither of these assumptions may be valid as *neighbourhood* is socially created on various scales (Suttles 1972). I have little choice but to argue that the scale at which I measure 'neighbourhood' most closely resembles the hypothesised causal mechanism. But this is probably inaccurate (Dietz, 2002, Flowerdew et al., 2008).

So, there are two arguments.

1) Clustering might be real, but it is impossible to measure because the geographical boundaries were not created to represent this clustering. A more complex (e.g. multilevel) model is still limited to use these geographical boundaries. Therefore, a more complex model is not necessarily any more accurate than a simpler model as they both rely on the same data.

2) Although it is difficult to measure the clustering caused by spatial autocorrelation, I should try to use the most advanced methods available to control for it. Even though there is no guarantee that more complex models offer more accurate results than simpler models.

I took a compromise on both arguments. I acknowledged that clustering within the data is real and likely to cause some bias in the measurement of neighbourhood effects. I suggest that controlling for spatial autocorrelation is a data problem which cannot be solved in my research, so it must be acknowledged. But instead of using a full multilevel model to calculate the size of the spatial autocorrelation bias, I treated the clustering measured at the ward scale as something to be controlled. This method is called the Huber White Sandwich Estimator, and can be easily operated in Stata using the 'robust cluster (ward)' option in the regression syntax (UCLA: Academic Technology Services SCG, 2009). The Huber White method adjusts the standard errors and p-values, which then tells us whether the coefficients or odds ratios are significant after controlling for clustering in the data.

3.4.4 Sampling the Office for National Statistics Longitudinal Study (ONS LS)

After reviewing the datasets available that could be used for the longitudinal analyses in my thesis, the ONS LS was identified as the most appropriate. In brief, this was because the ONS LS is properly longitudinal, following the same people over time. Secondly, the ONS LS was chosen because of the large numbers of ethnic minorities within the study, in comparison to other longitudinal data available (e.g. the BHPS). Third, the ONS LS contains some geographical data and has potential to add more customised variables if necessary. The aim of this part of the chapter is to describe the sampling of the ONS LS.

3.4.4.1 Sample Criteria 1: 1991 and 2001 ONS LS members

As with my analyses of the English census in 1991 and 2001, I began to explore the ONS LS by extracting those LS members who were present in the 1991 census (first line of Table 3-9). A major factor in choosing to begin with 1991 is that this was the first census year that I am able to measure the ethnic composition of neighbourhoods. The gender composition of the 1991 sample was slightly larger for women at approximately 52%, compared to men at 48%. As expected, the vast majority of LS members were identified in the White ethnic group. The number of LS members in each ethnic minority group varied, with the Indian group being the largest and the Chinese group the smallest. The gender composition of each ethnic group also varied, with men outnumbering women in the Pakistani group in particular, but in most groups there was generally a 50:50 split.

The 1991 sample is cross-sectional. In order to utilise the ONS LS in its longitudinal sense, further sampling was required. At least two time points are required to investigate for a potential trend in social mobility through time. So, I selected ONS LS members in the 1991 sample who were also present in the 2001 census, as shown in the second line of Table 3-9. As a note on Table 3-9, the second and subsequent lines represent sampling from the original 1991 cross-section (so further sampling is based upon the 1991 cross-section in line 1, not the previous line. This helps to know exactly what percent of the original 1991 cross-section is lost according to each selection criteria).

Any ONS LS member in the 1991 cross-section that did not appear in the 2001 census was omitted (this sample loss over time is called 'attrition'). The loss of some ONS LS members appeared to affect some ethnic groups more than others. Overall, 75.8% of men and 78.3% of women appeared in 1991 and 2001. This means that about 25% of men and 20% of women were lost from the sample. The overall attrition trend was mainly driven by the White ethnic group, as they were the largest group numerically. All ethnic minority groups more affected more by attrition than the White group. Indian LS members were the closest to the White group in terms of percent lost, but attrition was much more of an issue for the Black African group. The Pakistani, Bangladeshi, Black Caribbean and Chinese groups were all affected by attrition to a greater extent than the White group, but not as much as the Black African group.

Attrition is possible because some people will have died between 1991 and 2001. Others may have been alive, but did not take part in the 2001 census for other reasons. A major cause of not taking part will have been if a person left the country between 1991 and 2001 (or been away and unable to complete the questionnaire for other reasons). Many individuals will have been born outside the UK. It is not uncommon for the overseas-born to return to their homeland, particularly upon retirement or if they become ill ('salmon bias'). Emigration as a cause of

attrition is especially likely to explain the higher levels of sample loss among ethnic minority groups.

The variation in attrition among ethnic minority groups may also reflect different waves of immigration. The Indian group was one of the first to arrive in the UK in the 1950s and 1960s. It may be that the longer a group has been in the UK, the less likely individuals from that group will emigrate. In contrast, more recent waves of migration include the Bangladeshi and Black African groups. Individuals from these groups may be more likely to emigrate because of the shorter amount of time spent in the country. The likelihood of emigration may also be dependent upon socioeconomic position, with the Indian group being one of the more advantaged ethnic minority groups, but the Bangladeshi and Black African groups known to be among the most disadvantaged. I now describe the criteria on which I further sampled the ONS LS.

3.4.4.2 Sample Criteria 2: England, but not Wales

Now that the longitudinal sample has been selected and reviewed, further sampling was required. This was because it is common knowledge that the majority of ethnic minority individuals within the UK live in England, not Wales. As the the ONS LS is representative of England and Wales, this is problematic. The ethnic minority population resident in Wales is very small and this may create a problem for statistical modelling. The problem is the internal validity of the sample. What this means is the lack of ethnic minority representation in Wales will result in unfair comparisons being made, between the average levels of social mobility for ethnic minorities in England, with the average levels for the White group in England *and* Wales.

It makes more sense to compare the average for ethnic minorities in England with the White group in England to prevent any bias in modelling the White average. Thus, we reduced the

sample to ONS LS members that were resident only in England in 1991 and 2001. If an ONS LS member was living in Wales in 1991, their record in 1991 and 2001 was removed. If an ONS LS member was living in Wales in 2001, their record in 1991 and 2001 was removed. Only ONS LS members living in England in 1991 *and* 2001 were kept in the sample. The third line of Table 3-9 shows, as expected, that the number ONS LS members in ethnic minority groups were relatively unaffected by the restriction to England only ONS LS members. Even among the White group, the resulting attrition was only about 5%.

3.4.4.3 Sample Criteria 3: Urbanity

For the same reason of internal validity that led to the selection of England-only ONS LS members, I felt it was necessary to restrict the sample to only those persons living in urban neighbourhoods in 1991. There are several reasons why this was appropriate. First, ethnic minorities in England are geographically concentrated into urban areas. Rural settlements are predominantly composed of the White ethnic group. It does not make much sense to be comparing the average rate of social mobility among ethnic minorities in urban neighbourhoods to the White group who are in urban and rural neighbourhoods. Secondly, we know that the way geographical boundaries are based in some part on population levels. In urban areas, wards can be very small as lots of people live close together. Rural wards, however, tend to be quite large as there is often greater distance between towns and villages and with fewer people living in them.

The key problem is that the geographical characteristics measured at ward level are assumed to be consistent in every part of the ward. The bigger the ward, the more difficult this assumption is to accept. Third, large geographical units like rural wards are more at risk of hiding small differences. For example, a rural ward may be, on balance, fairly affluent on the Townsend deprivation index. However, since people close to each other are likely to be more similar than

those farther apart, and rural wards include people who are living quite far apart, it may be that some poorer people within the ward are hidden by the overall average. This is not so much of a problem in urban wards because of the high population density and likelihood that people close together are more similar. For these three reasons, I restricted the sample to only those ONS LS members who lived in an urban ward in 1991. Those who moved to rural wards in 2001 were not omitted, since all neighbourhood exposures are measured in 1991 only (to prevent the reverse causality problem).

The fourth line of Table 3-9 shows the result of removing any 1991 rural-based ONS LS members. This sampling affected the White ethnic group most, at about 8.4% attrition among men and 7.9% among women. Most ethnic minority groups were relatively unaffected, as expected. The Black African and Chinese were more subject to attrition at about 4-5% each, which represented the largest percent loss of any ethnic minority group.

3.4.4.4 Sample Criteria 4: Age

The final selection criteria was based upon age. Social mobility, whether measured by income or social class or economic activity all require that a person is of working age in order to achieve that status (I am only concerned with the socioeconomic position of the person, not that inherited through a married partner for example; as discussed in the Data and Method chapter). Therefore, only ONS LS members of working age in 1991 and 2001 could be included. Working age in the UK starts at 16, with retirement at age 65 among men and 60 for women. I selected only those ONS LS members from 18 to 54 for men and from 18 to 49 for women in 1991. By selecting one year below the national retirement age for men and women in 2001, I allowed the possibility that there could be social mobility among older persons nearing retirement.

The effect of restricting the sample by working age varied by ethnic group and gender. Women were more affected overall, with 55.5% attrition, compared to men at 47.6%. Again, the overall attrition was driven by the trend in the White ethnic group. Bangladeshi men were especially affected with an attrition rate of 53%. In comparison, the Indian, Black African and Chinese groups were far less affected by the age restriction.

3.4.4.5 The effect of combining the four sampling criteria simultaneously

The previous sections and first five lines of Table 3-9 discuss the effect of sampling criteria individually. In this section, I describe what happens what all four sampling criteria are used at the same time. This is illustrated in the final line of Table 3-9. Overall, 37.7% of men and 34.1% of women remained from the original 1991 selection after taking into account those ONS LS members who were in 1991 and 2001, in England throughout, in an urban ward in 1991, and were of working age. As expected from our review of attrition by each selection criteria separately, the total attrition also varied by ethnic group and gender. For example, the Indian group (43.7% men, 43.6% women) was less affected overall compared to the White group. The most affected were Black African men at only 25.7% left of the original 1991 sample, though Black African women were much closer to White women at 34.5%.

It is important to note that the final ONS LS sample is not actually analysed as a whole in any of the following analytical chapters. Each of those chapters selects a subsample based upon the dependent variables of interest. Therefore, the sample sizes become very small for many ethnic groups. The problem of small numbers was one of the main reasons why further linkage of the data to the 1971 census, which could have been done to add extra information on household

circumstances when a sample member was a child, was not an appropriate strategy. The small numbers of ONS LS ethnic minority members available within this sample and in the 1971 census is because many entered England after 1971. Furthermore, only fitting models to a subsample present in 2001, 1991 and 1971 may have yielded different results not only because of the new variables available for analysis, but because the population itself was different. Therefore, 1971 data was not considered because of the problem of studying a highly selected population, and the very small numbers for ethnic minority groups would not produce reliable statistical models.

Table 3.9: Restriction of the ONS LS by selection criteria (N=4) and final sample

	White	Indian	Pakistani	Bangla-deshi	Black Caribbean	Black African	Chinese	Other	Total
Total ONS LS data in 1991									
N Male	243,761	5,961	3,454	1,263	2,558	1,269	949	4,098	263,313
N Female	261,155	5,838	3,099	1,312	2,859	1,219	893	4,191	280,566
ONS LS sample: 1991 and 2001									
% Male	76.7	73.4	65.0	61.9	57.3	44.7	60.6	61.3	75.8
% Female	79.0	74.4	68.6	68.4	66.6	54.1	63.4	66.1	78.3
ONS LS sample: in England									
% Male	95.8	99.6	99.3	98.9	99.5	99.6	98.4	98.9	96.1
% Female	95.6	99.6	99.3	98.5	99.7	99.4	99.0	98.9	95.9
ONS LS sample: in urban wards									
% Male	91.6	98.5	98.7	99.0	97.7	94.6	95.0	96.2	92.0
% Female	92.1	98.6	99.3	99.1	98.7	96.3	96.4	96.9	92.5
ONS LS sample: within age range									
% Male	52.1	59.9	55.2	47.0	53.9	66.0	64.1	52.6	52.4
% Female	43.7	58.5	51.1	51.4	52.4	63.5	60.4	53.1	44.5
Final ONS LS sample									
% Male	37.9	43.7	35.6	30.4	31.6	25.7	33.8	28.9	37.7
% Female	33.9	43.6	35.6	34.5	36.3	34.1	34.5	32.7	34.1

% = percent of the original ONS LS 1991 sample

Created by the author using the ONS LS

3.4.4.6 Independent variables in the Office for National Statistics Longitudinal Study (ONS LS)

The ONS LS contains a large number of variables which are known to be important for social mobility, such as details of an individual's educational qualifications. In this section of the Chapter 3, I outline each of the ONS LS variables, why they were selected, and how I used them in my analyses.

Ethnicity

The ethnicity questions in the UK censuses of 1991 and 2001 were reviewed earlier in this chapter. As the responses to the ethnicity questions are known for the same people in the ONS LS in 1991 and 2001, a choice of variable was required. Although there is extra detail within the 2001 census question on ethnicity, for example on 'mixed' groups, the imputation results for missing data in 2001 are known to be unreliable; this is not the case with the 1991 responses (Platt et al., 2005). Therefore, responses to the 1991 census question were used in this thesis to define ethnicity and it was assumed that these groups were constant across time (i.e. people do not change their ethnic identity). This approach also has an advantage of increasing the comparability of my analyses with those already published (e.g. Heath and Smith, 2003). The ethnic groups considered are: White; Indian; Pakistani; Bangladeshi; Black Caribbean; Black African; and Chinese. In the 1991 census, a person not identifying with any of these groups was classified as 'other'. I kept these individuals within the models when investigating ethnic inequalities in social mobility, but do not attempt to draw conclusions specifically from this heterogeneous group of many different ethnicities.

Age

Age is the second variable in the ONS LS which has already been reflected upon in this chapter, specifically with regards to sampling. Only people of working age were included in the final ONS LS sample. Age is a continuous variable and can be fitted this way in a regression model, as long as there is the assumption that a linear association exists with the dependent variable(s). However, this assumption is not always true. One approach to test this linearity assumption would be to fit additional square and cubic functions of age within the model (collectively known as 'polynomial functions'). If these additional parameters are statistically significant, then they are able to indicate the nature of a non-linear association between age and the dependent variable(s). For example, the risk of losing a job may be very high among young adults, but instead of declining linearly year by year, the risk may reduce very quickly at first and followed by a shallower decline in older adulthood. Moreover, the risk may increase again among older adults. Therefore, reliance upon a linear function of age would miss important variation in the association with social mobility. However, one problem with using polynomial functions is that they can be difficult to interpret.

In my analyses, I first fitted linear, then polynomial functions of age to explore these associations. The final stage of my analysis was to adopt a categorical version of the age variable, splitting responses in the 1991 census into age groups. A variety of groups were investigated, with the aim to define groups which contained similar numbers of people, and were also a similar number of years in length. It is important to define age groups using similar numbers of people and similar years in length to ensure a linear or non-linear association is estimated accurately and not exaggerated (or hidden). The best fitting groups were around 10 years in length: 18 to 29; 30 to 39; 40 to 54 (men) and 40 to 49 (women). Men between 50 and 54 were aggregated with those aged 40 to 49 due to small numbers (this accounts for the later retirement age for men compared to women).

All of the analyses were separate for men and women, because social mobility for women is different to that experienced by men (Payne & Abbott, 1990), as discussed earlier. But this also means that men and women would not be directly compared within a regression model, which avoids the problem of a slightly longer number of years in the oldest age group for men (which is different to the equivalent age group for women). This method was a pragmatic approach to demonstrate non-linear associations with social mobility, and also to report descriptive statistics and model parameters in a more interpretable way. The age groups were based upon the data in my final ONS LS sample, and not specifically upon any prior research.

Couple status

Couple status was derived from variables in the ONS LS which described marital circumstances. In the 1991 and 2001 censuses, people responded across a wide range of answers including: married; cohabiting; single (never married); divorced; widowed. Prior research has suggested that whether a person is part of a couple or not, matters for their social mobility. For example, the 'tied migrant' effect found among women in couples (but not those who are single) are at a higher risk of unemployment if they relocate because of their partner's career (e.g. Boyle et al, 2003; van Ham, 2001). This effect does not differentiate between a woman who is cohabiting, or married. Similarly, men who remain single (never married), separated, divorced, or widowed are often less socially mobile compared to their peers who are in couples. For my analyses, I constructed a binary variable from the 1991 and 2001 censuses which identified whether a person was single (single never married, separated, divorced, or widowed), or part of a couple (married, re-married or cohabiting). Furthermore, as across the space of ten years an individual's couple status can change and this may influence their likelihood of being socially mobile, I constructed additional categories for people who were in a couple in 1991 but single by 2001, and single in 1991 but in a couple by 2001. This separated out the effect of change in couple status from the experience of consistency in couple status (or single status) on social mobility.

Qualifications

Educational and professional qualifications can be very important for social mobility, as discussed in the introductory chapter, so it was important to be able to adjust for them in my analyses. However, adjusting for different types of educational qualifications is very difficult because only a small proportion of the population in 1991 reported qualifications in the UK Census – especially among deprived populations and ethnic minority groups (Kam, 1997). Therefore, I took an approach that identified people with any form of educational or professional qualification, versus those who had neither. Like the couple status variable, changes in qualifications could also influence social mobility. Therefore, in addition to having categories for 'no qualifications' and 'qualifications in 1991 and 2001', I added a third category which identified people who had no qualifications in 1991, but had gained qualifications by 2001.

Household tenure

Household tenure can influence intragenerational social mobility (van Ham and Manley, 2010). Short tenancy agreements held by private renters makes them flexible to move, but the costs of moving for homeowners are often much higher and take a longer time to achieve. People in socially rented housing cannot afford to purchase or rent property on the private housing market, and is usually an indicator of long-term disadvantage (Clark and Huang, 2003). In the ONS LS, information on household tenure can be quite detailed, for example, with separate categories for homeowners with a mortgage versus people who fully own their home(s). There are separate categories indicating whether a private rented household comes furnished or unfurnished, and also whether a household rents from a Local Authority or a Housing Association. As there is no theoretical basis to expect that social mobility varies between people in Local Authority housing compared to Housing Association rented housing, or between people in furnished compared to

unfurnished private rented housing (etc), this level of detail was not required. So, a three-category simplified version of household tenure was constructed from the 1991 census to include: homeowners; private renters; social housing renters. Household tenure was only measured in 1991 because it is likely that the household tenure experienced in 2001 is the consequence of any social mobility that occurred, and therefore would be at risk of reverse causality.

Migrant generation

Some studies have suggested that people born overseas are less likely to be socially mobile compared to their UK-born peers (e.g. Heath and Cheung, 2007). The ONS LS contains information on where a person was born. I constructed a binary variable, indicating whether an individual was born in the UK, or overseas. Information on parental birthplace was not available, preventing analysis of important differences between 1st and 2nd generations (Peach, 2007).

Spatial mobility

Previous research has suggested a strong association between social and spatial mobility (e.g. Savage, 1988). To account for this, I used a variable in the ONS LS which identifies whether a person was living at the same address during the 2001 census as they did in the 1991 census. People who reported different addresses were identified as people who moved; those at the same address were categorised as non-movers. This approach is the best possible with the data available, though with an important limitation; among those individuals that did report different addresses in 1991 and 2001, there is no extra information in the ONS LS which indicates how many times they had changed their address. Therefore, there may be some people in the 'non-mover' category who actually were 'movers' but cannot be identified as such.

3.4.4.7 Approach to model-building for the analysis of the Office for National Statistics Longitudinal Study (ONS LS)

I have already outlined in this chapter the type of regression models I used for analysis of the ONS LS. In reflection of the independent variables described in the previous section of this chapter, the approach to model building is now specified.

In order to develop an understanding of two-way associations, descriptive statistics involving cross-tabulation of dependent and independent variables were derived in each set of ONS LS analyses. Univariate binary logit and multinomial logit regression models were used to test the statistical significance of these associations. All descriptive statistics and models were kept separately for men and women, due to reasons already explained in this chapter (i.e. common homemaking status among women but not men, and different occupational class trajectories between men and women).

To build the multivariate models, I began with the univariate models with social mobility as the dependent variable and including ethnicity as the sole independent variable (with White as the reference group). These models were then adjusted for age (first as linear and polynomial variables, then as a categorical variable). The age group variable was replaced by couple status, and couple status replaced by qualifications, and so on until a full set of models had been conducted for ethnicity plus every other independent variable. This approach allowed the examination of how a single independent variable could modify the ethnic minority differences in social mobility compared to their White peers. At this point, I also fitted interaction terms in the regression models between ethnicity and every other independent variable within the models, to see whether there were any ethnic group-specific effects of independent variables on the likelihood of being socially mobile. No statistically significant interactions were found.

There are some situations where some variables may appear to be highly correlated with each other (e.g. ethnicity and migrant generation status). This is called 'multicolinearity' and can cause problems for estimating separate effects in regression models. In these situations, it is appropriate to assess which of the independent variables were stronger predictors of social mobility. However, in the case of my study, all of the individual-level variables were conceptually distinct from one another. For example, ethnicity was associated with migrant generation status (with ethnic minorities more likely to be born overseas compared to their White peers – see Phillips, 1998), and older people were more likely to be in a couple (or had experienced transitions from couple to single status). But not all ethnic minorities were born overseas and there were many younger people who had already experienced transitions in couple status. These are all important variables which need to be kept in the models. Not including migrant generation in favour of ethnicity, or leaving out couple status in favour of age, could result in exaggerated parameters due to omitted variables bias.

The issue of 'multicolinearity' also needed to be addressed with regards to association between individual and neighbourhood level variables. As discussed in Chapter 2, it is highly likely where people live is related to choice determined by their individual characteristics. For example, people who do not possess any educational or professional qualifications are unlikely to live in the most affluent neighbourhoods. The ability to choose to live in affluent neighbourhoods is dependent upon whether the house prices are affordable. Therefore, that people able to select affluent neighbourhoods usually have well-paid jobs and high levels of qualifications. Similarly, as house prices in deprived neighbourhoods are cheaper, they are more affordable to people who have low incomes and low (or no) qualifications (Sampson, 2008). Therefore, it was possible that some individual and neighbourhood variables could suffer this multicolinearity problem, for example, qualifications and neighbourhood deprivation.

To explore this further, I performed an analysis of the final ONS LS sample and report the results here. Tables 3-10 and 3-11 show the patterning of individual and neighbourhood-level variables in the final sample, separately for men and women. Many of the patterns are as expected. For example, people in socially rented households and those without qualifications were found more commonly to be living in more deprived neighbourhoods. None of the patterns appeared to be very strong, although the concentration of ethnic minorities within deprived and ethnically diverse neighbourhoods reported in previous studies (e.g. Phillips, 1998) is confirmed.

I have two conclusions from tables 3-10 and 3-11. First, there is some pattern between some individual and neighbourhood level variables, though not to extremely high levels, which reflects the less segregated and more diverse composition of people across urban neighbourhoods in the UK (in comparison, for example, to the US). Second, a strong level of patterning between ethnic minority status and neighbourhood deprivation may lead to difficulties in separating these effects on social mobility. Although this is a well-known phenomenon in the US and the UK, there is no solution which is widely agreed upon; only that both ethnicity and deprivation must be taken into account (Kawachi et al., 2005). As my thesis is concerned whether ethnic inequalities in social mobility are explained by neighbourhood deprivation and diversity, neither ethnicity nor deprivation can be left out of the models (i.e. if the aim was to build 'parsimonious' models).

Therefore, after completing all possible models using these independent variables, multivariate models were constructed by adding other independent variables one-by-one to the models containing ethnicity and age group. First, individual-level variables were added, followed by region, neighbourhood deprivation, and separate measures of neighbourhood ethnic diversity. Once all independent variables had been added, I tested for interactions between the neighbourhood variables (e.g. deprivation interacting with ethnic diversity) and selected individual-neighbourhood interactions (e.g. qualifications interacting with deprivation). However,

like the interactions between ethnicity and other independent variables, these interactions were also not statistically significant in any model using the ONS LS data.

Non-significant independent variables ($p>0.05$) were kept in the models on the basis that all chosen independent variables were conceptually important (as discussed in the Introduction chapter). This approach therefore did not use stepwise procedures, which would automatically drop independent variables that were not statistically significant in order to find the most parsimonious model to describe the data. The statistical significance of independent variables does not perfectly align with conceptual significance for at least one very important reason. In models of small samples, as is common in studies of ethnic minority groups, associations between dependent and independent variables can be statistically insignificant not because of conceptual insignificance, but due to a lack of statistical power in the model. The principle is that if larger sample sizes were available, confidence intervals could be tighter and p-values could drop below the 0.05 threshold. One potential limitation of keeping statistically non-significant independent variables in the models is that statistical power declines as the number of parameters in a model increases, and this reduces the chance of detecting other statistically associations. I judged the conceptual significance of the variables to be of greater importance relative to achieving the most parsimonious models.

Table 3.10: Cross-tabulation of individual and neighbourhood independent variables in the ONS LS (Men)

	Deprivation (tertiles)			Non-White concentration (tertiles)			Ethnic diversity (tertiles)		
	Low	Mod.	High	Low	Mod.	High	High	Mod.	Low
Ethnicity	%	%	%	%	%	%	%	%	%
White	35.0	33.5	29.5	35.1	34.6	28.2	28.2	34.6	35.1
Indian	12.8	23.9	60.6	2.2	8.8	86.4	86.4	8.8	2.2
Pakistani	4.8	14.7	78.9	0.7	5.4	92.3	92.3	5.4	0.7
Bangladeshi	7.9	16.2	71.2	3.9	8.1	83.2	83.2	8.1	3.9
Black Caribbean	5.7	19.6	72.5	2.4	7.1	88.4	88.4	7.1	2.4
Black African	8.0	12.4	78.0	2.2	6.5	89.8	89.8	6.5	2.2
Chinese	19.8	22.6	52.5	9.4	22.6	62.9	62.9	23.0	9.1
Other	15.8	25.0	56.3	7.2	14.5	75.3	75.3	14.5	7.2
Age group									
18 to 29	28.5	32.6	35.1	30.5	32.2	33.4	33.5	32.2	30.5
30 to 39	32.7	32.9	32.9	31.8	33.0	33.7	33.7	33.0	31.8
40 to 54	38.0	32.4	28.7	35.8	33.4	29.9	29.9	33.4	35.7
Couple status									
Couple 1991 & 2001	37.7	33.0	28.4	35.3	33.8	30.1	30.1	33.8	35.3
Single 1991 and 2001	26.5	31.5	38.4	29.4	31.6	35.4	35.4	31.6	29.4
Couple 1991, Single 2001	32.7	34.0	31.8	35.2	33.5	29.7	29.8	33.5	35.2
Single 1991, Couple 2001	29.4	32.2	34.1	28.8	31.5	35.4	35.4	31.5	28.8
Qualifications									
No qualifications	24.6	32.4	42.1	34.0	31.1	34.0	34.0	31.1	34.0
Qualifications in 1991 and 2001	45.9	31.0	22.7	29.8	33.8	36.0	36.1	33.8	29.7
No qualifications in 1991, qualifications in 2001	33.6	33.2	30.1	33.4	33.5	30.1	30.1	33.5	33.4
Household tenure									
Owner	38.5	33.8	26.4	34.3	34.2	30.2	30.2	34.2	34.3
Private renter	20.5	29.5	40.1	21.0	25.0	44.2	44.2	24.9	21.0
Social renter	11.3	28.1	59.1	31.0	29.6	37.8	37.9	29.6	31.0
Migrant generation									
UK born	34.9	33.3	29.8	35.3	34.5	28.1	28.2	34.5	35.3
Born overseas	17.6	25.3	54.8	8.7	16.5	72.5	72.5	16.5	8.6
Spatial mobility									
Non-mover	34.9	33.0	31.3	35.3	33.3	30.6	30.6	33.3	35.3
Mover	32.0	32.3	32.6	30.8	32.6	33.5	33.5	32.6	30.8

Created by the Author from the ONS Longitudinal Study (1991-2001)

Table 3.11: Cross-tabulation of individual and neighbourhood independent variables in the ONS LS (Women)

	Deprivation (tertiles)			Non-White concentration (tertiles)			Ethnic diversity (tertiles)		
	Low	**Mod.**	**High**	**Low**	**Mod.**	**High**	**High**	**Mod.**	**Low**
Ethnicity	%	%	%	%	%	%	%	%	%
White	33.8	33.8	30.5	34.9	34.3	29.0	29.0	34.3	34.8
Indian	12.6	23.2	62.3	1.8	9.3	86.9	86.9	9.3	1.8
Pakistani	5.9	14.3	78.5	1.2	5.3	92.3	92.3	5.3	1.2
Bangladeshi	4.9	10.9	82.9	1.6	6.2	90.9	90.9	6.2	1.6
Black Caribbean	6.5	17.0	75.2	2.6	7.2	88.8	88.8	7.2	2.6
Black African	4.8	14.2	76.7	1.7	6.7	87.3	87.3	6.7	1.7
Chinese	19.8	31.4	46.2	9.9	26.7	60.7	60.7	26.7	9.9
Other	15.7	22.2	59.3	7.6	14.9	74.7	74.7	14.9	7.6
Age group									
18 to 29	26.9	32.3	37.4	30.0	31.1	35.4	35.4	31.1	30.0
30 to 39	33.0	33.0	33.0	32.4	33.0	33.7	33.7	33.0	32.4
40 to 49	37.7	33.1	28.4	35.6	33.6	30.0	30.0	33.6	35.6
Couple status									
Couple 1991 & 2001	37.3	33.7	28.3	35.2	34.0	30.0	30.1	34.0	35.2
Single 1991 and 2001	23.8	30.6	42.4	27.5	29.9	39.3	39.4	29.9	27.5
Couple 1991, Single 2001	30.9	33.5	34.6	34.1	32.8	32.1	32.1	32.8	34.1
Single 1991, Couple 2001	28.4	32.4	34.8	29.7	30.9	35.0	35.0	30.9	29.7
Qualifications									
No qualifications	23.3	31.7	44.2	33.5	31.1	34.6	34.7	31.1	33.5
Qualifications in 1991 and 2001	41.0	32.4	26.4	28.5	32.3	39.0	39.0	32.3	28.5
No qualifications in 1991, qualifications in 2001	33.9	33.3	30.1	32.9	33.1	31.3	31.3	33.1	32.9
Household tenure									
Owner	38.2	34.3	26.3	34.0	33.9	30.9	30.9	33.9	34.0
Private renter	21.1	30.3	39.3	23.2	24.9	42.5	42.5	24.9	23.2
Social renter	10.7	27.7	60.5	29.7	29.3	39.9	39.9	29.3	29.7
Migrant generation									
UK born	33.4	33.7	31.1	34.8	34.1	29.2	29.2	34.1	34.8
Born overseas	19.5	24.3	54.5	9.8	17.0	71.4	71.4	17.0	9.8
Spatial mobility									
Non-mover	33.7	33.5	32.1	34.6	33.1	31.6	31.6	33.1	34.6
Mover	30.7	32.1	34.4	30.7	31.9	34.6	34.6	31.9	30.7

Created by the Author from the ONS Longitudinal Study (1991-2001)

4. Are there regional and neighbourhood ethnic inequalities in economic status in England in 1991 and 2001?

4.1 Introduction

From the discussion in the Literature Review, we learned that many studies have reported ethnic inequalities in life chances, especially in labour market outcomes (Loury et al., 2005, Heath et al., 2000b, 2008a, Li and Heath, 2008, Platt, 2007, Modood et al., 1997). Much of this work has been conducted by using individual level data, but often without a geographical focus. As I discussed in the Literature Review chapter, geography may be important for understanding ethnic inequalities at various scales.

A small number of studies in England have reported variation in ethnic inequalities in economic activity at regional and smaller geographical scales (Simpson et al., 2009, Khattab et al., 2010, Clark and Drinkwater, 2000, 2002). However, most studies in this regard use only one single cross-sectional data set. An understanding on how ethnic inequalities at different geographical scales may have changed over time has not yet been examined in detail.

In this chapter, I extend the evidence on geographical variation using cross-sectional data from the English Census to investigate ethnic inequalities in economic activity and inactivity in 1991 and 2001 at the national, regional, and ward scales. The types of economic activity I explore are unemployment, total employment, and self employment. I also explore economic inactivity *for other reasons*. This included staying at home to look after the household, which I refer to as 'homemaking'. Building on previous literature which has studied effects of deprivation and ethnic concentration on life chances (e.g. (Wilson, 1987, Borjas, 1995, Cutler et al., 2005, Clark

and Drinkwater, 2002, Sampson, 2008, Mendenhall et al., 2006)), I further investigate association between economic activity and inactivity, with measures of deprivation and co-ethnic concentration at the ward scale.

I address three research questions in separate studies:

1. (Study 1) To what extent are there ethnic inequalities in economic activity/inactivity in England in 1991 and 2001?

2. (Study 2) To what extent do ethnic inequalities in economic activity/inactivity in England vary regionally and through time?

3. (Study 3) To what extent are ethnic inequalities in economic activity/inactivity in England associated with deprivation and co-ethnic concentration at the neighbourhood scale?

This chapter is structured as follows. I give a brief discussion on the census data and how it was applied in this chapter. I pay close attention on finding the most suitable method of modelling the dependent variables. Study 1 uses descriptive statistics to explore ethnic inequalities at the national level (England). Study 2 extends this work to the regional level. Study 3 takes the investigation down to the ward level, as proxy for neighbourhood. Summaries of what I found are provided at the end of each Study. Then, I draw all the results together into a discussion of the main findings, strengths and limitations, and a conclusion.

4.2 Data

4.2.1 Sample

In this chapter I used data from the 1991 and 2001 censuses in England. The censuses were described in the 'Data and Method' chapter already, so details here are briefly summarised. In the 1991 census, data on people aged 16 and over was extracted from table LBS09 of the Local Base Statistics (LBS) wards. In the 2001 census, data on people aged 16-74 was extracted from table ST108 of the Standard Table (ST) wards. Economically inactive people who were retired, students, or long-term sick were not included in my data. I restructured the data so the count of people in each variable was known for every ethnic and gender group within each ward.

Ward boundaries were important in this chapter because they were likely to be more representative of residents' local environments than larger areas such as Local Authorities, as discussed in the Literature Review and Data and Method chapters. Wards were also appropriate for harmonising the much larger *Government Office Region*s (GOR) between 1991 and 2001, which I use to examine regional inequalities. Using Wards, I was able to minimise this bias and still had access to the appropriate level of detail in economic activity/inactivity data by ethnic group and sex.

Regions were defined by the GOR boundaries. GORs did not exist in 1991. Instead, Standard Statistical Regions (SSRs) were present in 1991. I harmonised the SSRs to GOR boundaries and analysed regional inequalities in 1991 and 2001. This was important for a more reliable comparison of geographical variation over time. A map of the GORs is illustrated in Figure 4-1. The main changes over time were the transfer of some countries from SSRs to GORs. Therefore,

these counties could be identified and used to harmonise the regional geography of England between 1991 and 2001 as follows:

- County “Cumbria” changed from “North” in 1991 to “North West” in 2001
- Counties “Bedfordshire”, “Essex”, and “Hertfordshire” changed from “South East” in 1991 to “East of England” in 2001

Figure 4-1: Government Office Regions in 2001 (Source: downloaded by author from http://www.statistics.gov.uk/geography/downloads/GB_GOR98_A4.pdf, September 2010)

4.2.2 Dependent and independent variables

The dependent variables tested in this chapter were as follows:

- Unemployment
- Total employment
- Self employment
- Economically inactive *for other reasons* (e.g. homemaker)

These variables were chosen to extend previous research that has tended to explore binary variables within the labour market, like employment/unemployment (e.g. Heath and Smith, 2003). Exploring self employment and economic inactivity *for other reasons* (homemaking) allows potential variation of ethnic inequalities to be analysed. This was important as some have suggested that a greater proportion of people from the same ethnic minority group (co-ethnic) within a neighbourhood encourages more traditional household divisions of labour and increases local demand for niche enterprise – the 'ethnic enclave effect' (Cutler et al., 2008b, Peach, 1996b, Wilson and Portes, 1980). The age range differed between 1991 (16 and over) and 2001 (16-74).

Some neighbourhood characteristics are used in study 3 of this chapter. These include Townsend deprivation and co-ethnic concentration. The measures of neighbourhood deprivation and co-ethnic concentration have already been outlined in the 'Data and Method' chapter. I repeat the formula for co-ethnic concentration below. All neighbourhood measures are estimated for the ward boundaries.

$$\text{Co-ethnic concentration} = 100 \times \frac{\text{Number of ethnic group-specific people}}{\text{Total number of people}}$$

4.3 Descriptive statistics & modelling strategy

Each of the dependent variables is a count of people. For descriptive statistics, I calculated rates of each dependent variable by ward, ethnic group and gender, using the formula defined by the Office for National Statistics below:

- Unemployment = [Unemployed / Economic Active] x 100%
- Total employment = [Total Employees / (Total Population – Retired)] x 100%
- Self-employment = [Self employees / Total Employees] x 100%
- Inactive Other = [Economic Inactive Other / (Total Population – Retired)] x 100%

OLS linear regression was considered for testing associations between dependent and independent variables. However, there were several reasons that OLS regression could not be used. The first reason was related to the small numbers in the numerators and denominators of the equations listed above. Small numbers were a problem because the rates of each dependent variable were highly sensitive to changes in small sample sizes in a ward. For example, if there were five out of ten White women unemployed and lived in a single ward, a one-person increase in the number of unemployed would raise the local female White unemployment rate by 10%.

The second reason that OLS regression was not used was because of the normality assumption. Although modelling the rates calculated for every ward was unsuitable, modelling the count of individuals within a ward using OLS regression would have been even less appropriate. This was because counts of people cannot be negative, so the dependent variables were unlikely to follow a normal-distribution. I checked the normality of the counts by looking at skewness and kurtosis statistics (Table 1). If a variable was normally distributed, skewness would have been close to zero and kurtosis around 3. Table 4-1 shows all of the skewness and kurtosis statistics, which suggest the count data were definitely not normally distributed, and OLS linear regression was

not satisfactory. As a note on Table 1, 'Observations' refers to the number of rows in the data, corresponding to wards x gender x ethnicity. Rows of data which contained a zero count in the denominator were deleted, which resulted in the total number observations reported.

Table 4.1: Descriptive statistics for dependent variables (1991 and 2001)

1991	Unemployed	Total Employed	Self-Employed	Inactive Other
Observations	76661	76661	76661	76661
Mean	24.7	242.0	31.5	168.4
Std. Dev.	73.2	588.6	84.4	440.2
Variance	5364.7	346420.4	7117.4	193810.0
Skewness	5.8	3.4	4.3	4.1
Kurtosis	49.9	18.4	28.9	25.3

2001	Unemployed	Total Employed	Self-Employed	Inactive Other
Observations	80259	80259	80259	80259
Mean	14.9	270.0	36.8	153.1
Std. Dev.	39.2	613.3	91.2	363.1
Variance	1532.8	376147.8	8317.7	131807.9
Skewness	5.0	3.1	3.9	3.7
Kurtosis	39.5	15.5	24.4	21.9

Source: Author calculated from 1991 and 2001 Censuses, tables: LBS09 and ST108

One alternative to modelling count data where the errors are not normally distributed and the variables often contain many zero counts is to use the Poisson regression model (Lovett and Flowerdew, 1989). Poisson regression is used in the social sciences to explore associations in datasets where the dependent variable is a 'count' of something. Poisson regression models are able to fit associations in data where the values of the dependent variable follow a Poisson distribution whose parameter is given by the model. I fit each of the dependent variables with the Poisson regression, as showed in Table 2. The 'Constant' is the natural logarithm of the mean rate of the labour market outcome across all observations in the dataset (observations are wards,

by ethnic group and gender). The exponential of the constant gives the actual dependent variable mean rate.

It seems, however, that Poisson regression was not the best choice for this data. This was because the Poisson distribution assumed the variance of the dependent variable was equal to its mean. The descriptive statistics show that this is not the case for any of the dependent variables used (Table 4-2). When the variance is greater than the mean, the data over-dispersed and the Poisson regression may not accurately estimate associations. For further confirmation, the very large and statistically significant goodness of fit statistic showed at the bottom of the Poisson models also suggest that the data were likely to be over-dispersed (Table 4-2). Therefore, the Poisson regression method was not appropriate.

Table 4.2: Poisson regression models (intercept-only models i.e. no independent variables, 1991 and 2001)

1991	Unemployed	Total Employed	Self-Employed	Inactive Other
Constant	-2.391	-0.385	-2.039	-0.747
	(0.001)**	(0.000)**	(0.001)**	(0.000)**
Observations	76661	76661	76661	76661
Goodness of fit chi2	760026.9	775356.2	971290.3	2192149.0
Prob>chi2	<0.001	<0.001	<0.001	<0.001

2001	Unemployed	Total Employed	Self-Employed	Inactive Other
Constant	-2.992	-0.350	-1.995	-0.918
	(0.001)**	(0.000)**	(0.001)**	(0.000)**
Observations	80259	80259	80259	80259
Goodness of fit chi2	559681.5	891624.2	1038422.0	1629594.0
Prob>chi2	<0.001	<0.001	<0.001	<0.001

Standard errors in parentheses
* p<=0.05; ** p<=0.01

Source: Author calculated from 1991 and 2001 Censuses, tables: LBS09 and ST108

An alternative to the Poisson model is the Negative-Binomial regression (Agresti, 2007). Negative-Binomial regression assumes that dependent variables do not follow the normal-distribution. But they also allow the variance to be greater than the mean. Therefore, Negative-Binomial regression models are able to model association within data that are over-dispersed. Fitting Negative-Binomial regression models in Table 4-3, we can see differences in the constant parameters compared with those estimated in the Poisson models. To check that the Negative-Binomial regression method is more appropriate than the Poisson, I calculated the likelihood ratio test (chibar2). When the chibar2 parameter is zero, the results of a Negative-Binomial model would be very similar to a Poisson model. For each of the models, the chibar2 is very large and statistically significant (Prob>=chibar2) to 1%. This is further confirmation that the Poisson regression model would not be appropriate for these dependent variables and that the Negative-Binomial regression method is preferable.

Table 4.3: Negative-Binomial regression models (intercept-only models i.e. no independent variables, 1991 and 2001)

1991	Unemployed	Total Employed	Self-Employed	Inactive Other
Constant	-2.173	-0.460	-1.838	-0.912
	(0.004)**	(0.001)**	(0.004)**	(0.002)**
Observations	76661	76661	76661	76661
chibar2	610000	620000	810000	2000000
Prob>=chibar2	<0.001	<0.001	<0.001	<0.001

2001	Unemployed	Total Employed	Self-Employed	Inactive Other
Constant	-2.749	-0.455	-1.838	-0.948
	(0.005)**	(0.001)**	(0.004)**	(0.002)**
Observations	80259	80259	80259	80259
chibar2	400000	680000	830000	1400000
Prob>=chibar2	<0.001	<0.001	<0.001	<0.001

Standard errors in parentheses
* p<=0.05; ** p<=0.01

Source: Author calculated from 1991 and 2001 Censuses, tables: LBS09 and ST108

As discussed in the Data and Method chapter, clustering within the data needed to be accounted for, in order to reduce spatial autocorrelation bias (Miller, 2004). Estimating robust standard errors in Stata and adjusting for 'clustering' within wards (using the "robust cluster" option) helped to solve this problem (UCLA: Academic Technology Services, 2008, Williams, 2000). The 'Number of Clusters' reported in each Table from here indicated the total number of wards in the data. However, the standard errors and significance levels were adjusted (Table 4-4). All models in this chapter adjusted for clustering in this way.

Table 4.4: Negative-Binomial regression models with adjustment of standard errors for clustering within Wards (intercept-only models i.e. no independent variables, 1991 and 2001)

1991	Unemployed	Total Employed	Self-Employed	Inactive Other
Constant	-2.173	-0.460	-1.838	-0.912
	(0.010)**	(0.002)**	(0.005)**	(0.003)**
Observations	76661	76661	76661	76661
Number of clusters	7469	7469	7469	7469

2001	Unemployed	Total Employed	Self-Employed	Inactive Other
Constant	-2.749	-0.455	-1.838	-0.948
	(0.009)**	(0.003)**	(0.005)**	(0.003)**
Observations	80259	80259	80259	80259
Number of clusters	7932	7932	7932	7932

Robust standard errors in parentheses
* p<=0.05; ** p<=0.01

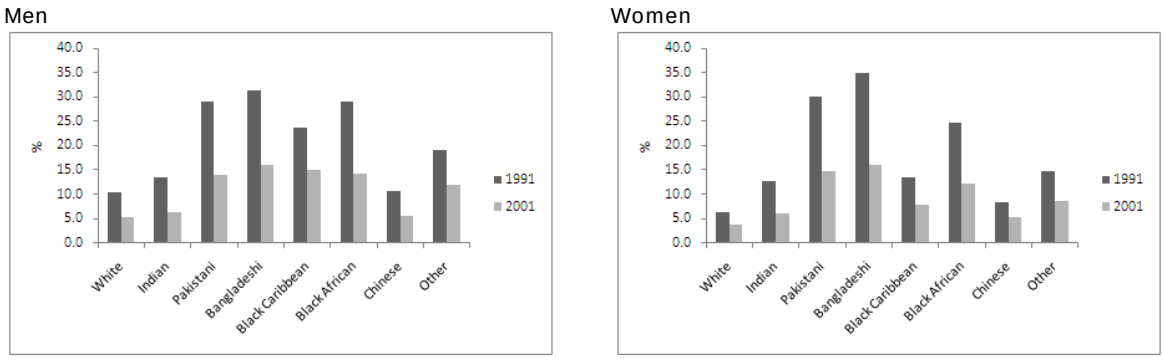
Source: Author calculated from 1991 and 2001 Censuses, tables: LBS09 and ST108

4.4 Results

4.4.1 Study 1: To what extent are there ethnic inequalities in economic status in England in 1991 and 2001?

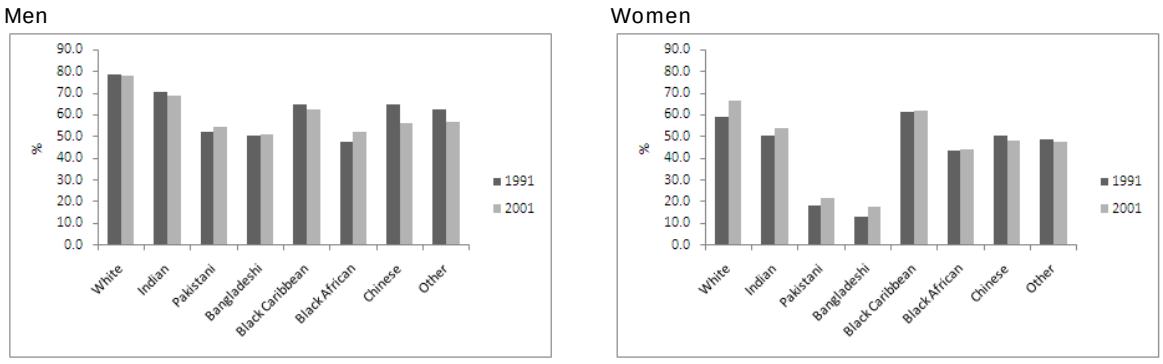
This section briefly examines trends in gender and ethnic group-specific rates for each labour market outcome in 1991 and 2001. Figure 4-2 illustrates ethnic inequalities in rates of unemployment through time and by gender. In 1991, unemployment rates for men were highest among the Pakistani, Bangladeshi, Black Caribbean and Black African groups. These ethnic inequalities were also found for women, except for the unemployment rate among the Black Caribbean women, which was more similar to White women. Indian and Chinese men and women had more similar rates of unemployment to White men and women, compared to other ethnic groups. Rates of unemployment fell between 1991 and 2001 for all ethnic groups. Similar decreases were observed for men and women. Unemployment rates fell most for the Bangladeshi, Black African and Pakistani groups. Generally, unemployment rates in most groups tended to decrease by around 50%. Despite falls in unemployment, the pattern of ethnic inequality present in 1991 persisted through to 2001.

Figure 4-2: Unemployment rates 1991 and 2001 (Source: Calculated by the author using 1991 and 2001 Censuses, tables: LBS09 and ST108)



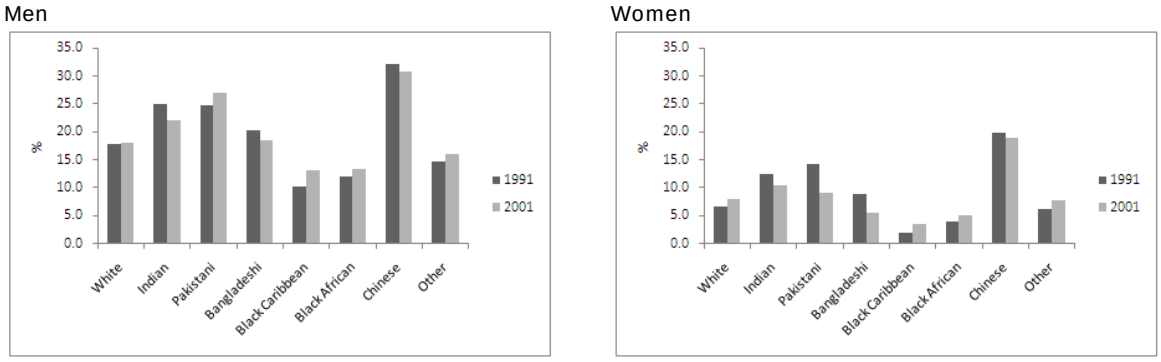
Total employment rates varied little between 1991 and 2001 for men and women in most ethnic groups (Figure 4-3). Rates increased for Bangladeshi, Black African and Pakistani men and Bangladeshi, Black African, Black Caribbean, Indian and Pakistani women. Rates decreased for Black Caribbean, Chinese, Indian, Other and White men, and Chinese, Other and White women. Because there was little change between 1991 and 2001, ethnic inequalities in the total employment rate tended to persist. For men, lower rates were observed for all ethnic minority groups compared to the White group, especially among Bangladeshi, Black African and Pakistani men. Only Black Caribbean women had a similar total employment rate to White women. The lowest total employment rates were reported for Bangladeshi and Pakistani women.

Figure 4-3: Total employment rates 1991 and 2001 (Source: Author calculated from 1991 and 2001 Censuses, tables: LBS09 and ST108)



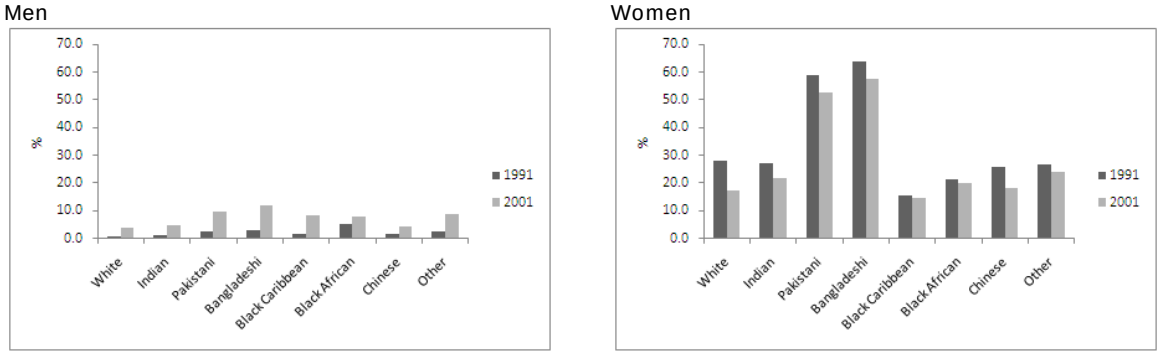
Rates of self-employment did not tend to vary between 1991 and 2001 (Figure 4-4). Rates were highest for Chinese men and women, but lowest for Black African and Black Caribbean men and women. Self-employment rates were also relatively high for Indian and Pakistani men. Rates fell most between 1991 and 2001 for Bangladeshi and Pakistani women. In comparison, rates increased for Pakistani men.

Figure 4-4: Self-employment rates 1991 and 2001 (Source: Author calculated from 1991 and 2001 Censuses, tables: LBS09 and ST108)



Rates of economic inactivity *for other reasons* varied considerably between 1991 and 2001 (Figure 4-5). Rates were far higher among women than for men. Rates increased for all men between 1991 and 2001. The opposite trend was found for women, but this did not reduce the gender gap. For women, rates fell most for the White group. Despite also falling between 1991 and 2001, rates for Bangladeshi and Pakistani women remained very high at 50-60% compared to all other ethnic groups.

Figure 4-5: Economically inactive other reasons 1991 and 2001 (Source: Author calculated from 1991 and 2001 Censuses, tables: LBS09 and ST108)



Summary of Study 1

In summary of the descriptive statistics presented in this study, it is clear that there were ethnic inequalities in economic activity and inactivity in 1991 and 2001. These ethnic inequalities were often gender-specific (i.e. the huge differences in economic inactivity *for other reasons* and self employment between men and women). There was evidence on change through time for most ethnic groups in each dependent variable. Although these changes did not result in widening ethnic inequalities, it did not really reduce them either, except for unemployment. Furthermore, this study has also clearly showed that further investigation of ethnic inequalities in economic activity and inactivity in England must consider the substantial differences in these inequalities between men and women.

4.4.2 Study 2: To what extent do ethnic inequalities in economic status in England vary regionally and through time?

In this study, I use regression analysis to investigate the significance of the ethnic inequalities identified in study 1. In particular, I explore to what extent the ethnic inequalities were present in all regions of England. First, I explore the significance of the gender differences that I identified in Study 1. Using Negative Binomial regression, Tables 4-5 and 4-6 show statistically significant interactions between gender and ethnicity for every dependent variable in 1991 and 2001 censuses.

To interpret these models, it is important to remember that the coefficients were not 'main' or 'independent' effects. These coefficients were actually the differences between the coefficients and the reference groups in the interaction. For example, the unemployment parameter for

"Sex=Men" in Table 5 (0.478) is the difference in unemployment for men, compared to women, who are in the White ethnic group. The parameter "Ethnic=Bangladeshi" (1.478) is the difference in the unemployment rate for Bangladeshi women, compared to White women. The parameter "Sex=Men & Ethnic=Bangladeshi" (-0.654) is the difference in the unemployment rate for Bangladeshi men, compared to White men.

What this means is that the ethnic and gender inequalities identified in Study 1 with descriptive statistics were also statistically meaningful. It suggests that further regression modelling needs to take into account of gender differences within ethnic groups. This can be done through an interaction, as shown in Tables 4-5 and 4-6, or through regression models calculated for men and women separately. I proceed with the stratification option, as further interactions with ethnicity are needed to explore regional variation in ethnic inequalities.

Table 4.5: Ethnic group * Gender Interactions: Negative-Binomial regression models with adjustment of standard errors for clustering within Wards (1991)

1991	**Unemployed**		**Total Employed**		**Self-Employed**		**Inactive Other**	
	Coefficient	**(SE)**	**Coefficient**	**(SE)**	**Coefficient**	**(SE)**	**Coefficient**	**(SE)**
Gender (ref: female)								
Male	0.478	(0.003)**	0.307	(0.001)**	0.918	(0.004)**	-0.671	(0.002)**
Ethnicity (ref: White)								
Indian	0.619	(0.013)**	-0.119	(0.005)**	0.791	(0.016)**	-0.362	(0.005)**
Pakistani	1.372	(0.017)**	-1.031	(0.017)**	0.539	(0.027)**	0.062	(0.005)**
Bangladeshi	1.478	(0.025)**	-1.450	(0.030)**	-0.125	(0.056)*	0.169	(0.006)**
Black Caribbean	0.679	(0.013)**	0.069	(0.004)**	-1.390	(0.031)**	-0.625	(0.007)**
Black African	1.205	(0.016)**	-0.277	(0.007)**	-0.732	(0.037)**	-0.449	(0.008)**
Chinese	0.316	(0.027)**	-0.149	(0.007)**	0.895	(0.019)**	-0.295	(0.007)**
Other	0.808	(0.011)**	-0.179	(0.005)**	-0.235	(0.019)**	-0.350	(0.005)**
Gender x Ethnicity (ref: Male x White)								
Men x Indian	-0.494	(0.013)**	0.024	(0.004)**	-0.379	(0.013)**	-0.048	(0.007)**
Men x Pakistani	-0.533	(0.016)**	0.672	(0.015)**	-0.255	(0.025)**	-0.277	(0.009)**
Men x Bangladeshi	-0.654	(0.024)**	n/a	n/a	0.302	(0.058)**	-0.404	(0.016)**
Men x Black Caribbean	0.060	(0.013)**	-0.248	(0.004)**	0.794	(0.032)**	0.150	(0.011)**
Men x Black African	-0.301	(0.016)**	-0.209	(0.008)**	0.207	(0.040)**	0.373	(0.013)**
Men x Chinese	-0.272	(0.027)**	-0.042	(0.007)**	-0.378	(0.017)**	0.169	(0.013)**
Men x Other	-0.235	(0.012)**	-0.045	(0.005)**	-0.040	(0.020)*	-0.015	(0.009)
Constant	-2.848	(0.006)**	-0.527	(0.001)**	-2.508	(0.007)**	-0.445	(0.002)**
Observations	76661		76661		76661		76661	
Number of clusters	7469		7469		7469		7469	

Robust standard errors in parentheses
* p<=0.05; ** p<=0.01

Source: Author calculated from 1991 and 2001 Censuses, tables: LBS09 and ST108

Table 4.6: Ethnic group * Gender Interactions: Negative-Binomial regression models with adjustment of standard errors for clustering within Wards (2001).

2001	Unemployed		Total Employed		Self-Employed		Inactive Other	
	Coefficient	(SE)	Coefficient	(SE)	Coefficient	(SE)	Coefficient	(SE)
Gender (ref: female)								
Men	0.320	(0.004)**	0.164	(0.001)**	0.754	(0.003)**	-0.490	(0.002)**
Ethnicity (ref: White)								
Indian	0.420	(0.018)**	-0.163	(0.004)**	0.470	(0.017)**	-0.180	(0.006)**
Pakistani	1.145	(0.022)**	n/a		0.045	(0.029)	0.286	(0.006)**
Bangladeshi	1.232	(0.032)**	-1.190	(0.019)**	-0.514	(0.068)**	0.359	(0.007)**
Black Caribbean	0.593	(0.020)**	-0.053	(0.004)**	-0.935	(0.029)**	-0.257	(0.008)**
Black African	1.004	(0.020)**	-0.400	(0.007)**	-0.582	(0.031)**	-0.168	(0.008)**
Chinese	0.305	(0.032)**	-0.273	(0.007)**	0.763	(0.018)**	-0.057	(0.008)**
Other	0.733	(0.016)**	-0.291	(0.004)**	-0.171	(0.018)**	-0.131	(0.005)**
Gender x Ethnicity (ref: Male x White)								
Men x Indian	-0.408	(0.023)**	0.069	(0.004)**	-0.190	(0.015)**	0.024	(0.009)**
Men x Pakistani	-0.412	(0.025)**	0.610	(0.011)**	0.250	(0.030)**	-0.200	(0.010)**
Men x Bangladeshi	-0.486	(0.038)**	0.878	(0.018)**	0.658	(0.069)**	-0.309	(0.014)**
Men x Black Caribbean	0.223	(0.022)**	-0.119	(0.005)**	0.512	(0.031)**	0.263	(0.011)**
Men x Black African	-0.152	(0.023)**	0.000	(0.007)	0.154	(0.034)**	0.199	(0.012)**
Men x Chinese	-0.281	(0.041)**	0.001	(0.007)	-0.247	(0.019)**	0.214	(0.011)**
Men x Other	-0.077	(0.019)**	0.022	(0.005)**	-0.013	-0.020	0.123	(0.008)**
Constant	-3.325	(0.006)**	-0.393	(0.001)**	-2.360	(0.006)**	-0.705	(0.003)**
Observations	80259		80259		80259		80259	
Number of clusters	7932		7932		7932		7932	

Robust standard errors in parentheses
* p<=0.05; ** p<=0.01
Source: Author calculated from 1991 and 2001 Censuses, tables: LBS09 and ST108

I then investigated for regional variation in the ethnic inequalities that I had already identified. Separate Negative-Binomial regression models were calculated for men and women separately, first with ethnicity and region as independent main effects. Similar ethnic inequalities were identified as previously reported. Adding regions into the model as a main effect (controlling for ethnicity), I found London (the reference region) tended to have higher rates of unemployment, lower total employment, lower self employment, and lower economic inactivity *for other reasons*,

compared to most other regions. However, modelling region as an independent effect did not provide any information on how ethnic inequalities varied regionally. To explore this further, Tables 4-7 to 4-10 present results of models that included interactions between region and ethnicity.

The interpretation of the coefficients was not straightforward as the coefficients are the differences from the mean of several references groups (White, and London). It was a similar situation to the interpretation of the interaction between ethnicity and gender earlier in this chapter. For example in Table 4-7, the "Ethnic=Bangladeshi" coefficient for unemployment is not the difference in rate from the "Ethnic=White" reference group anywhere in England. Because there was an interaction with region, the "Ethnic=Bangladeshi" coefficient was the difference in unemployment rate from the White reference group, *in London*. Similarly, the "GOR=East Midlands" unemployment parameter was the difference in rate for East Midlands compared to London, for the White ethnic group only. Finally, the "ethnic=Bangladeshi & GOR=East Midlands" unemployment parameter is the difference in rate for the Bangladeshi ethnic group in the East Midlands, compared to the Bangladeshi ethnic group in London.

Table 4.7: Ethnic group * Region: Negative-Binomial regression models with adjustment of standard errors for clustering within Wards (1991 Men)

1991	Unemployed		Total Employed		Self-Employed		Inactive Other	
	Coefficient	(SE)	Coefficient	(SE)	Coefficient	(SE)	Coefficient	(SE)
Ethnicity (ref: White)								
Indian	-0.066	(0.018)**	-0.069	(0.004)**	0.399	(0.013)**	-0.272	(0.013)**
Pakistani	0.533	(0.022)**	-0.294	(0.008)**	0.267	(0.021)**	-0.145	(0.017)**
Bangladeshi	0.731	(0.025)**	-0.450	(0.017)**	0.060	(0.039)	-0.071	(0.020)**
Black Caribbean	0.546	(0.015)**	-0.164	(0.005)**	-0.489	(0.018)**	-0.434	(0.017)**
Black African	0.847	(0.017)**	-0.505	(0.009)**	-0.403	(0.022)**	-0.022	(0.015)
Chinese	0.071	(0.032)*	-0.195	(0.009)**	0.194	(0.022)**	-0.074	(0.019)**
Other	0.448	(0.012)**	-0.217	(0.005)**	-0.299	(0.015)**	-0.281	(0.013)**
Region (ref: London)								
East Midlands	-0.366	(0.027)**	0.039	(0.004)**	0.006	(0.017)	0.074	(0.012)**
East of England	-0.499	(0.021)**	0.071	(0.004)**	0.097	(0.013)**	0.008	-0.013
North East	0.141	(0.032)**	-0.110	(0.008)**	-0.332	(0.029)**	0.217	(0.013)**

North West	-0.142	(0.029)**	-0.019	(0.005)**	-0.062	(0.018)**	0.123	(0.011)**
South East	-0.529	(0.021)**	0.072	(0.004)**	0.104	(0.012)**	0.022	(0.012)
South West	-0.436	(0.022)**	0.047	(0.004)**	0.356	(0.016)**	0.202	(0.013)**
West Midlands	-0.343	(0.027)**	0.034	(0.004)**	0.058	(0.022)**	0.026	(0.011)*
Yorkshire	-0.240	(0.033)**	0.006	(0.006)	0.003	(0.023)	0.111	(0.012)**
Ethnicity x Region								
(Ref Indian x London)								
Indian x East Midlands	0.244	(0.042)**	-0.035	(0.009)**	0.154	(0.037)**	-0.152	(0.028)**
Indian x East of England	0.069	(0.049)	-0.002	(0.008)	-0.034	(0.031)	-0.209	(0.033)**
Indian x North East	-0.387	(0.100)**	0.073	(0.021)**	0.861	(0.052)**	-0.188	(0.055)**
Indian x North West	0.158	(0.056)**	-0.067	(0.017)**	0.208	(0.036)**	-0.143	(0.029)**
Indian x South East	0.217	(0.040)**	-0.014	(0.007)	-0.108	(0.027)**	-0.252	(0.027)**
Indian x South West	0.256	(0.081)**	-0.010	(0.016)	-0.436	(0.052)**	-0.401	(0.047)**
Indian x West Midlands	0.362	(0.035)**	-0.083	(0.009)**	-0.099	(0.037)**	-0.059	(0.022)**
Indian x Yorkshire	0.153	(0.059)**	-0.051	(0.015)**	0.299	(0.045)**	-0.112	(0.035)**
(Ref Pakistani x London)								
Pakistani x East Midlands	0.362	(0.060)**	-0.120	(0.030)**	0.151	(0.062)*	-0.023	(0.043)
Pakistani x East of England	0.275	(0.062)**	-0.027	(0.023)	-0.248	(0.060)**	-0.103	(0.041)*
Pakistani x North East	-0.129	(0.074)	0.059	(0.038)	0.980	(0.056)**	-0.219	(0.052)**
Pakistani x North West	0.208	(0.041)**	-0.090	(0.016)**	0.414	(0.040)**	-0.008	(0.028)
Pakistani x South East	0.342	(0.044)**	0.008	(0.016)	-0.345	(0.049)**	-0.187	(0.034)**
Pakistani x South West	0.148	(0.120)	-0.036	(0.037)	-0.284	(0.081)**	-0.277	(0.079)**
Pakistani x West Midlands	0.548	(0.039)**	-0.182	(0.017)**	-0.047	(0.052)	0.012	(0.030)
Pakistani x Yorkshire	0.442	(0.046)**	-0.160	(0.021)**	0.212	(0.051)**	-0.092	(0.032)**
(Ref Bangladeshi x London)								
Bangladeshi x East Midlands	0.210	(0.106)*	0.081	(0.047)	0.235	(0.114)*	-0.196	(0.077)*
Bangladeshi x East of England	0.120	(0.078)	0.158	(0.045)**	0.070	(0.078)	-0.348	(0.070)**
Bangladeshi x North East	-0.661	(0.147)**	0.316	(0.062)**	0.762	(0.115)**	-0.388	(0.125)**
Bangladeshi x North West	-0.047	(0.078)	0.046	(0.047)	0.341	(0.080)**	-0.089	(0.053)
Bangladeshi x South East	-0.511	(0.097)**	0.371	(0.024)**	0.226	(0.061)**	-0.616	(0.069)**
Bangladeshi x South West	-0.556	(0.155)**	0.447	(0.031)**	-0.008	(0.092)	-1.207	(0.149)**
Bangladeshi x West Midlands	0.319	(0.063)**	-0.096	(0.044)*	0.138	(0.085)	0.059	(0.047)
Bangladeshi x Yorkshire	0.321	(0.077)**	-0.067	(0.045)	0.099	(0.115)	-0.084	(0.060)
(Ref Black Caribbean x London)								
Black Caribbean x East Midlands	0.177	(0.040)**	-0.009	(0.018)	-0.165	(0.053)**	0.029	(0.047)
Black Caribbean x East of England	0.078	(0.041)	0.044	(0.013)**	-0.157	(0.052)**	-0.202	(0.054)**
Black Caribbean x North East	-0.159	(0.132)	-0.049	(0.076)	0.217	(0.237)	0.323	(0.120)**
Black Caribbean x North West	0.132	(0.041)**	-0.059	(0.024)*	0.063	(0.064)	0.183	(0.047)**
Black Caribbean x South East	0.183	(0.040)**	0.011	(0.015)	-0.036	(0.051)	-0.112	(0.060)
Black Caribbean x South West	0.261	(0.052)**	-0.007	(0.020)	-0.407	(0.078)**	-0.191	(0.055)**
Black Caribbean x West Midlands	0.301	(0.032)**	-0.055	(0.014)**	-0.335	(0.050)**	0.029	(0.034)
Black Caribbean x Yorkshire	0.243	(0.046)**	-0.063	(0.021)**	-0.218	(0.080)**	0.045	(0.046)
(Ref Black African x London)								
Black African x East Midlands	-0.116	(0.081)	0.122	(0.044)**	-0.360	(0.144)*	-0.150	(0.080)
Black African x East of England	-0.493	(0.085)**	0.210	(0.043)**	-0.380	(0.112)**	-0.199	(0.087)*
Black African x North East	-0.667	(0.149)**	0.153	(0.118)	0.089	(0.232)	-0.109	(0.125)
Black African x North West	-0.185	(0.059)**	0.048	(0.053)	0.160	(0.082)	0.011	(0.054)
Black African x South East	-0.218	(0.062)**	0.117	(0.035)**	-0.240	(0.077)**	-0.019	(0.055)
Black African x South West	-0.302	(0.115)**	0.049	(0.067)	-0.796	(0.172)**	-0.084	(0.085)
Black African x West Midlands	-0.028	(0.067)	0.034	(0.047)	-0.184	(0.102)	0.029	(0.067)
Black African x Yorkshire	-0.091	(0.085)	-0.016	(0.068)	0.051	(0.114)	0.055	(0.064)
(Ref Chinese x London)								
Chinese x East Midlands	-0.060	(0.109)	-0.045	(0.039)	0.583	(0.045)**	0.002	(0.062)

Chinese x East of England	-0.216	(0.084)*	0.054	(0.024)*	0.216	(0.040)**	-0.188	(0.057)**
Chinese x North East	-0.971	(0.189)**	0.139	(0.073)	1.055	(0.061)**	-0.192	(0.095)*
Chinese x North West	-0.148	(0.071)*	0.003	(0.028)	0.734	(0.036)**	0.005	(0.040)
Chinese x South East	-0.281	(0.074)**	0.033	(0.019)	0.252	(0.036)**	-0.110	(0.044)*
Chinese x South West	-0.486	(0.124)**	0.096	(0.024)**	0.190	(0.044)**	-0.350	(0.062)**
Chinese x West Midlands	-0.011	(0.097)	-0.085	(0.042)*	0.462	(0.048)**	0.114	(0.056)*
Chinese x Yorkshire	-0.244	(0.107)*	-0.069	(0.054	0.669	(0.051)**	0.048	(0.062)
(Ref Other x London)								
Other x East Midlands	0.186	(0.043)**	-0.039	(0.018)*	0.085	(0.047)	-0.065	(0.039)
Other x East of England	-0.045	(0.039)	0.062	(0.011)**	-0.116	(0.044)**	-0.172	(0.038)**
Other x North East	-0.139	(0.066)*	-0.019	(0.044)	0.804	(0.071)**	-0.037	(0.066)
Other x North West	0.148	(0.032)**	-0.056	(0.020)**	0.431	(0.038)**	-0.071	(0.031)*
Other x South East	-0.048	(0.031)	0.049	(0.011)**	-0.045	(0.032)	-0.099	(0.030)**
Other x South West	0.174	(0.048)**	0.020	(0.018)	-0.075	(0.048)	-0.249	(0.041)**
Other x West Midlands	0.291	(0.032)**	-0.085	(0.018)**	-0.156	(0.049)**	-0.056	(0.035)
Other x Yorkshire	0.231	(0.042)**	-0.123	(0.027)**	0.181	(0.049)**	0.040	(0.045)
Constant	-2.068	(0.016)**	-0.251	(0.003)**	-1.666	(0.009)**	-1.193	(0.007)**
Observations	38608		38608		38608		38608	
Number of clusters	7469		7469		7469		7469	

Robust standard errors in parentheses

* p<=0.05; ** p<=0.01

Source: created by author from the 1991 census

Table 4.8: Ethnic group * Region: Negative-Binomial regression models with adjustment of standard errors for clustering within Wards (2001 Men)

2001	**Unemployed**		**Total Employed**		**Self-Employed**		**Inactive Other**	
	Coefficient	**(SE)**	**Coefficient**	**(SE)**	**Coefficient**	**(SE)**	**Coefficient**	**(SE)**
Ethnicity (ref: White)								
Indian	-0.103	(0.025)**	-0.093	(0.004)**	0.137	(0.013)**	-0.140	(0.016)**
Pakistani	0.428	(0.032)**	-0.267	(0.008)**	0.176	(0.019)**	-0.003	(0.020)
Bangladeshi	0.693	(0.035)**	-0.357	(0.012)**	-0.127	(0.032)**	0.040	(0.021)
Black Caribbean	0.810	(0.020)**	-0.197	(0.006)**	-0.333	(0.016)**	-0.063	(0.019)**
Black African	0.831	(0.022)**	-0.358	(0.007)**	-0.315	(0.017)**	-0.130	(0.017)**
Chinese	0.077	(0.042)	-0.223	(0.010)**	0.139	(0.022)**	0.033	(0.021)
Other	0.636	(0.017)**	-0.275	(0.005)**	-0.223	(0.013)**	-0.066	(0.015)**
Region (ref: London)								
East Midlands	-0.256	(0.027)**	0.037	(0.005)**	-0.093	(0.015)**	-0.109	(0.019)**
East of England	-0.507	(0.024)**	0.078	(0.004)**	0.030	(0.013)*	-0.203	(0.018)**
North East	0.361	(0.031)**	-0.096	(0.008)**	-0.362	(0.026)**	0.106	(0.018)**
North West	0.004	(0.028)	-0.024	(0.006)**	-0.112	(0.017)**	0.018	(0.017)
South East	-0.609	(0.023)**	0.080	(0.004)**	0.019	(0.012)	-0.233	(0.017)**
South West	-0.456	(0.023)**	0.055	(0.005)**	0.184	(0.015)**	-0.087	(0.017)**
West Midlands	-0.212	(0.029)**	0.035	(0.005)**	-0.041	(0.019)*	-0.102	(0.019)**
Yorkshire	-0.049	(0.034)	0.005	(0.007)	-0.068	(0.023)**	-0.052	(0.020)**
Ethnicity x Region (Ref: Indian x London)								
Indian x East Midlands	0.155	(0.057)**	-0.020	(0.012)	0.282	(0.035)**	-0.012	(0.033)
Indian x East of England	0.067	(0.073)	0.020	(0.010)	0.090	(0.032)**	-0.074	(0.035)*

Indian x North East	-0.538	(0.145)**	0.074	(0.027)**	0.977	(0.050)**	-0.128	(0.056)*
Indian x North West	-0.066	(0.067)	0.002	(0.016)	0.267	(0.036)**	-0.023	(0.034)
Indian x South East	0.232	(0.059)**	0.007	(0.008)	0.023	(0.027)	-0.012	(0.028)
Indian x South West	0.071	(0.116)	0.024	(0.015)	-0.355	(0.062)**	-0.155	(0.053)**
Indian x West Midlands	0.363	(0.043)**	-0.032	(0.009)**	0.136	(0.035)**	-0.049	(0.027)
Indian x Yorkshire	-0.034	(0.075)	-0.012	(0.016)	0.386	(0.041)**	-0.073	(0.038)
(Ref Pakistani x London)								
Pakistani x East Midlands	0.474	(0.086)**	-0.061	(0.023)**	0.210	(0.053)**	0.110	(0.048)*
Pakistani x East of England	0.438	(0.078)**	-0.034	(0.019)	-0.097	(0.051)	0.181	(0.044)**
Pakistani x North East	-0.218	(0.095)*	0.117	(0.024)**	0.913	(0.054)**	-0.139	(0.059)*
Pakistani x North West	0.083	(0.054)	-0.017	(0.015)	0.347	(0.035)**	0.033	(0.031)
Pakistani x South East	0.348	(0.065)**	0.018	(0.013)	0.001	(0.038)	0.110	(0.034)**
Pakistani x South West	0.087	(0.146)	0.046	(0.030)	-0.185	(0.076)*	-0.018	(0.074)
Pakistani x West Midlands	0.534	(0.051)**	-0.095	(0.016)**	0.175	(0.042)**	0.119	(0.033)**
Pakistani x Yorkshire								
(Ref Bangladeshi x London)	0.421	(0.059)**	-0.075	(0.016)**	0.347	(0.041)**	0.066	(0.033)*
Bangladeshi x East Midlands	-0.146	(0.146)	0.075	(0.031)*	0.191	(0.115)	-0.017	(0.066)
Bangladeshi x East of England	0.187	(0.097)	0.079	(0.029)**	0.276	(0.067)**	-0.014	(0.053)
Bangladeshi x North East	-0.590	(0.176)**	0.170	(0.038)**	0.893	(0.097)**	-0.174	(0.070)*
Bangladeshi x North West	-0.040	(0.089)	0.060	(0.027)*	0.375	(0.071)**	-0.078	(0.047)
Bangladeshi x South East	-0.266	(0.114)*	0.152	(0.021)**	0.431	(0.057)**	-0.106	(0.048)*
Bangladeshi x South West	-0.394	(0.204)	0.249	(0.030)**	0.321	(0.081)**	-0.402	(0.088)**
Bangladeshi x West Midlands	0.285	(0.082)**	-0.079	(0.027)**	0.232	(0.074)**	0.136	(0.049)**
Bangladeshi x Yorkshire	0.186	(0.093)*	-0.030	(0.033)	0.265	(0.110)*	0.061	(0.060)
(Ref Black Caribbean x London)								
Black Caribbean x East Midlands	0.028	(0.061)	0.025	(0.019)	-0.126	(0.061)*	0.046	(0.041)
Black Caribbean x East of England	-0.135	(0.065)*	0.104	(0.014)**	-0.098	(0.050)	-0.073	(0.044)
Black Caribbean x North East	-0.465	(0.222)*	0.045	(0.068)	0.252	(0.235)	-0.054	(0.130)
Black Caribbean x North West	-0.166	(0.068)*	0.000	(0.022)	-0.045	(0.070)	0.153	(0.041)**
Black Caribbean x South East	-0.050	(0.065)	0.077	(0.015)**	-0.073	(0.051)	-0.024	(0.042)
Black Caribbean x South West	-0.286	(0.105)**	0.072	(0.023)**	-0.328	(0.076)**	-0.006	(0.056)
Black Caribbean x West Midlands	0.149	(0.040)**	-0.007	(0.014)	-0.285	(0.048)**	0.129	(0.031)**
Black Caribbean x Yorkshire	-0.020	(0.065)	-0.008	(0.019)	-0.309	(0.070)**	0.189	(0.041)**
(Ref Black African x London)								
Black African x East Midlands	0.063	(0.090)	-0.174	(0.042)**	-0.273	(0.122)*	0.315	(0.051)**
Black African x East of England	-0.035	(0.082)	0.042	(0.023)	-0.019	(0.063)	0.051	(0.045)
Black African x North East	-0.566	(0.146)**	-0.087	(0.070)	-0.715	(0.323)*	0.245	(0.073)**
Black African x North West	-0.160	(0.071)*	-0.090	(0.034)**	-0.072	(0.081)	0.138	(0.040)**
Black African x South East	-0.128	(0.070)	-0.027	(0.021)	-0.332	(0.070)**	0.249	(0.035)**
Black African x South West	0.017	(0.131)	-0.058	(0.043)	-0.549	(0.138)**	0.153	(0.066)*
Black African x West Midlands	0.166	(0.078)*	-0.222	(0.040)**	-0.415	(0.115)**	0.312	(0.046)**
Black African x Yorkshire	-0.190	(0.105)	-0.188	(0.055)**	-0.133	(0.119)	0.322	(0.048)**
(Ref Chinese x London)								
Chinese x East Midlands	-0.056	(0.139)	-0.153	(0.041)**	0.572	(0.049)**	0.201	(0.045)**
Chinese x East of England	-0.155	(0.133)	-0.046	(0.029)	0.273	(0.042)**	0.139	(0.042)**
Chinese x North East	-0.583	(0.192)**	0.031	(0.052)	0.979	(0.064)**	-0.072	(0.067)
Chinese x North West	-0.088	(0.089)	0.012	(0.027)	0.683	(0.037)**	-0.033	(0.038)
Chinese x South East	-0.268	(0.115)*	-0.061	(0.022)**	0.281	(0.036)**	0.177	(0.035)**
Chinese x South West	-0.062	(0.178)	-0.124	(0.036)**	0.340	(0.045)**	0.124	(0.050)*
Chinese x West Midlands	-0.298	(0.134)*	-0.204	(0.042)**	0.481	(0.050)**	0.280	(0.042)**
Chinese x Yorkshire	-0.113	(0.129)	-0.093	(0.046)*	0.609	(0.053)**	0.083	(0.049)
(Ref Other x London)								
Other x East Midlands	0.010	(0.056)	-0.004	(0.017)	0.098	(0.047)*	0.046	(0.033)

Other x East of England	-0.052	(0.054)	0.058	(0.012)**	-0.068	(0.036)	0.004	(0.029)
Other x North East	-0.220	(0.073)**	-0.085	(0.033)*	0.558	(0.070)**	0.090	(0.039)*
Other x North West	-0.008	(0.043)	-0.015	(0.015)	0.248	(0.036)**	0.012	(0.025)
Other x South East	-0.063	(0.045)	0.045	(0.010)**	-0.010	(0.029)	0.081	(0.024)**
Other x South West	0.027	(0.062)	0.003	(0.016)	-0.108	(0.045)*	0.074	(0.032)*
Other x West Midlands	0.245	(0.040)**	-0.067	(0.016)**	-0.060	(0.041	0.084	(0.028)**
Other x Yorkshire	0.037	(0.051)	-0.049	(0.020)*	0.112	(0.047)*	0.061	(0.030)*
Constant	-2.766	(0.018)**	-0.262	(0.004)**	-1.594	(0.009)**	-1.099	(0.015)**
Observations	40403		40403		40403		40403	
Number of clusters	7932		7932		7932		7932	

Robust standard errors in parentheses

* p<=0.05; ** p<=0.01

Source: created by author from the 2001 census

Table 4.9: Ethnic group * Region: Negative-Binomial regression models with adjustment of standard errors for clustering within Wards (1991 Women)

1991	**Unemployed**		**Total Employed**		**Self-Employed**		**Inactive Other**	
	Coefficient	**(SE)**	**Coefficient**	**(SE)**	**Coefficient**	**(SE)**	**Coefficient**	**(SE)**
Ethnicity (ref: White)								
Indian	0.331	(0.019)**	-0.157	(0.007)**	0.772	(0.028)**	-0.289	(0.009)**
Pakistani	0.983	(0.028)**	-0.825	(0.020)**	0.527	(0.048)**	0.062	(0.009)**
Bangladeshi	1.310	(0.032)**	-1.433	(0.048)**	0.074	(0.083)	0.184	(0.010)**
Black Caribbean	0.497	(0.016)**	0.028	(0.006)**	-1.198	(0.041)**	-0.587	(0.012)**
Black African	1.126	(0.017)**	-0.338	(0.008)**	-0.615	(0.045)**	-0.441	(0.011)**
Chinese	0.262	(0.039)**	-0.203	(0.012)**	0.649	(0.038)**	-0.261	(0.013)**
Other	0.620	(0.015)**	-0.196	(0.007)**	-0.159	(0.026)**	-0.354	(0.010)**
Region (ref: London)								
East Midlands	-0.378	(0.024)**	-0.020	(0.005)**	0.130	(0.029)**	0.015	(0.009)
East of England	-0.486	(0.020)**	-0.020	(0.004)**	0.133	(0.027)**	0.004	(0.009)
North East	-0.043	(0.030)	-0.136	(0.008)**	-0.156	(0.040)**	0.076	(0.010)**
North West	-0.164	(0.028)**	-0.028	(0.006)**	0.118	(0.032)**	0.061	(0.008)**
South East	-0.531	(0.019)**	-0.009	(0.004)*	0.202	(0.026)**	0.003	(0.009)
South West	-0.447	(0.021)**	-0.064	(0.005)**	0.559	(0.028)**	0.094	(0.009)**
West Midlands	-0.332	(0.025)**	-0.025	(0.005)**	0.186	(0.034)**	0.018	(0.009)*
Yorkshire	-0.310	(0.029)**	-0.052	(0.006)**	0.177	(0.036)**	0.048	(0.009)**
Ethnicity x Region (Ref Indian x London)								
Indian x East Midlands	0.437	(0.039)**	0.072	(0.016)**	0.222	(0.060)**	-0.123	(0.020)**
Indian x East of England	0.266	(0.049)**	0.117	(0.014)**	0.062	(0.053)	-0.126	(0.020)**
Indian x North East	-0.120	(0.107)	0.061	(0.036)	1.038	(0.078)**	-0.019	(0.037)
Indian x North West	0.290	(0.054)**	-0.183	(0.034)**	0.327	(0.056)**	0.064	(0.021)**
Indian x South East	0.367	(0.043)**	0.122	(0.012)**	0.035	(0.046)	-0.159	(0.017)**
Indian x South West	0.231	(0.088)**	0.090	(0.035)*	-0.378	(0.078)**	-0.120	(0.035)**
Indian x West Midlands	0.452	(0.034)**	-0.010	(0.014)	-0.049	(0.058)	-0.047	(0.016)**
Indian x Yorkshire	0.335	(0.066)**	-0.010	(0.034)	0.445	(0.067)**	-0.022	(0.029)

(Ref Pakistani x London)								
Pakistani x East Midlands	0.563	(0.070)**	-0.168	(0.075)*	-0.063	(0.121	-0.010	(0.023)
Pakistani x East of England	0.425	(0.077)**	-0.132	(0.064)*	-0.433	(0.133)**	0.025	(0.020)
Pakistani x North East	0.151	(0.082)	-0.090	(0.064)	1.115	(0.110)**	-0.037	(0.024)
Pakistani x North West	0.272	(0.051)**	-0.346	(0.040)**	0.545	(0.072)**	0.045	(0.014)**
Pakistani x South East	0.423	(0.061)**	-0.085	(0.046)	-0.596	(0.124)**	0.020	(0.018)
Pakistani x South West	-0.009	(0.148)	0.137	(0.080)	-0.691	(0.211)**	-0.133	(0.040)**
Pakistani x West Midlands	0.709	(0.049)**	-0.588	(0.058)**	0.160	(0.093)	0.094	(0.015)**
Pakistani x Yorkshire	0.641	(0.052)**	-0.570	(0.049)**	0.246	(0.084)**	0.074	(0.016)**
(Ref Bangladeshi x London)								
Bangladeshi x East Midlands	-0.046	(0.134)	0.168	(0.103)	0.025	(0.308)	0.024	(0.028)
Bangladeshi x East of England	0.133	(0.104)	-0.110	(0.073)	-0.466	(0.225)*	0.073	(0.019)**
Bangladeshi x North East	-0.080	(0.185)	-0.277	(0.161)	0.585	(0.278)*	0.011	(0.029)
Bangladeshi x North West	-0.051	(0.089)	-0.017	(0.093)	0.134	(0.185)	-0.032	(0.021)
Bangladeshi x South East	-0.018	(0.118)	-0.030	(0.090)	-0.448	(0.202)*	0.069	(0.020)**
Bangladeshi x South West	-0.392	(0.219)	0.393	(0.119)**	-0.358	(0.287)	-0.103	(0.033)**
Bangladeshi x West Midlands	0.371	(0.072)**	-0.223	(0.083)**	-0.454	(0.210)*	0.023	(0.020)
Bangladeshi x Yorkshire	0.330	(0.094)**	-0.161	(0.098)	-0.074	(0.278)	-0.038	(0.025)
(Ref Black Caribbean x London)								
Black Caribbean x East Midlands	0.182	(0.050)**	0.032	(0.015)*	-0.240	(0.148)	0.044	(0.029)
Black Caribbean x East of England	0.030	(0.055)	0.121	(0.012)**	-0.008	(0.135)	-0.163	(0.027)**
Black Caribbean x North East	-0.192	(0.269)	-0.147	(0.080)	0.806	(0.517)	0.399	(0.090)**
Black Caribbean x North West	0.125	(0.056)*	-0.046	(0.019)*	-0.114	(0.158)	0.099	(0.029)**
Black Caribbean x South East	0.046	(0.055)	0.099	(0.012)**	-0.022	(0.125)	-0.150	(0.028)**
Black Caribbean x South West	-0.077	(0.088)	0.115	(0.018)**	-0.055	(0.163)	-0.081	(0.038)*
Black Caribbean x West Midlands	0.333	(0.038)**	-0.008	(0.014)	-0.444	(0.103)**	0.028	(0.023)
Black Caribbean x Yorkshire	0.145	(0.061)*	0.045	(0.018)*	-0.192	(0.166)	0.008	(0.031)
(Ref Black African x London)								
Black African x East Midlands	-0.206	(0.116)	0.156	(0.039)**	0.005	(0.245)	0.048	(0.048)
Black African x East of England	-0.405	(0.094)**	0.298	(0.026)**	-0.377	(0.210)	-0.157	(0.045)**
Black African x North East	-0.570	(0.223)*	-0.050	(0.083)	0.613	(0.375)	0.218	(0.065)**
Black African x North West	-0.216	(0.091)*	0.000	(0.050)	0.303	(0.133)*	0.107	(0.034)**
Black African x South East	-0.397	(0.082)**	0.221	(0.026)**	0.046	(0.131)	-0.024	(0.037)
Black African x South West	-0.446	(0.183)*	0.114	(0.054)*	-0.295	(0.278)	0.100	(0.057)
Black African x West Midlands	-0.246	(0.097)*	0.098	(0.042)*	0.285	(0.185)	0.066	(0.044)
Black African x Yorkshire	-0.116	(0.116)	-0.071	(0.068)	0.108	(0.247)	0.204	(0.041)**
(Ref Chinese x London)								
Chinese x East Midlands	-0.149	(0.140)	-0.014	(0.036)	0.528	(0.072)**	0.073	(0.033)*
Chinese x East of England	-0.121	(0.097)	0.111	(0.023)**	0.083	(0.071)	-0.067	(0.028)*
Chinese x North East	-0.061	(0.159)	0.107	(0.054)*	1.055	(0.085)**	-0.018	(0.043)
Chinese x North West	-0.169	(0.091)	0.054	(0.026)*	0.790	(0.057)**	-0.028	(0.026)
Chinese x South East	-0.054	(0.083)	0.093	(0.019)**	0.126	(0.059)*	-0.059	(0.023)**
Chinese x South West	-0.337	(0.131)*	0.196	(0.026)**	0.231	(0.064)**	-0.161	(0.034)**
Chinese x West Midlands	0.172	(0.108)	-0.068	(0.035)*	0.351	(0.078)**	0.110	(0.029)**
Chinese x Yorkshire	-0.043	(0.135)	0.015	(0.038)	0.598	(0.076)**	0.045	(0.031)
(Ref Other x London)								
Other x East Midlands	0.283	(0.049)**	-0.018	(0.022)	-0.026	(0.086)	0.042	(0.022)
Other x East of England	0.073	(0.047)	0.101	(0.014)**	0.041	(0.064)	-0.018	(0.019)
Other x North East	0.110	(0.088)	-0.263	(0.048)**	0.664	(0.129)**	0.212	(0.029)**
Other x North West	0.274	(0.039)**	-0.145	(0.020)**	0.165	(0.072)*	0.071	(0.017)**
Other x South East	-0.020	(0.039)	0.099	(0.012)**	0.000	(0.055)	-0.023	(0.017)
Other x South West	0.156	(0.056)**	0.089	(0.018)**	-0.141	(0.078)	-0.052	(0.022)*
Other x West Midlands	0.376	(0.040)**	-0.115	(0.022)**	-0.283	(0.091)**	0.079	(0.020)**

Other x Yorkshire	0.372	(0.048)**	-0.138	(0.027)**	-0.023	(0.090)	0.098	(0.023)**
Constant	-2.524	(0.016)**	-0.496	(0.003)**	-2.697	(0.022)**	-0.477	(0.006)**
Observations	38053		38053		38053		38053	
Number of clusters	7469		7469		7469		7469	

Robust standard errors in parentheses

* p<=0.05; ** p<=0.01

Source: created by author from the 1991 census

Table 4.10: Ethnic group * Region: Negative-Binomial regression models with adjustment of standard errors for clustering within Wards (2001 Women)

2001	**Unemployed**		**Total Employed**		**Self-Employed**		**Inactive Other**	
	Coefficient	**(SE)**	**Coefficient**	**(SE)**	**Coefficient**	**(SE)**	**Coefficient**	**(SE)**
Ethnicity (ref: White)								
Indian	0.228	(0.026)**	-0.149	(0.007)**	0.234	(0.025)**	-0.157	(0.012)**
Pakistani	0.911	(0.038)**	-0.723	(0.016)**	0.060	(0.047)	0.187	(0.012)**
Bangladeshi	1.148	(0.042)**	-1.123	(0.029)**	-0.511	(0.107)**	0.292	(0.014)**
Black Caribbean	0.574	(0.023)**	-0.045	(0.006)**	-0.862	(0.035)**	-0.309	(0.015)**
Black African	1.012	(0.020)**	-0.377	(0.008)**	-0.564	(0.034)**	-0.207	(0.013)**
Chinese	0.252	(0.046)**	-0.237	(0.010)**	0.333	(0.036)**	-0.115	(0.014)**
Other	0.666	(0.019)**	-0.302	(0.006)**	-0.172	(0.022)**	-0.135	(0.011)**
Region (ref: London)								
East Midlands	-0.181	(0.023)**	0.038	(0.006)**	-0.071	(0.026)**	-0.067	(0.014)**
East of England	-0.358	(0.020)**	0.050	(0.005)**	-0.019	(0.024)	-0.080	(0.014)**
North East	0.153	(0.029)**	-0.062	(0.008)**	-0.395	(0.038)**	0.052	(0.014)**
North West	-0.111	(0.024)**	0.003	(0.006)	-0.131	(0.029)**	-0.016	(0.014)
South East	-0.488	(0.020)**	0.059	(0.005)**	0.065	(0.024)**	-0.120	(0.013)**
South West	-0.340	(0.020)**	0.048	(0.005)**	0.295	(0.026)**	-0.046	(0.013)**
West Midlands	-0.193	(0.024)**	0.036	(0.006)**	-0.045	(0.031)	-0.051	(0.015)**
Yorkshire	-0.081	(0.029)**	0.017	(0.007)*	-0.052	(0.036)	-0.031	(0.015)*
Ethnicity x Region								
(Ref Indian x London)								
Indian x East Midlands	0.154	(0.061)*	0.004	(0.016)	0.465	(0.060)**	-0.029	(0.023)
Indian x East of England	0.293	(0.071)**	0.047	(0.013)**	0.291	(0.052)**	-0.099	(0.022)**
Indian x North East	-0.313	(0.161)	0.025	(0.029)	1.349	(0.076)**	-0.052	(0.038)
Indian x North West	0.253	(0.069)**	-0.170	(0.025)**	0.471	(0.061)**	0.124	(0.021)**
Indian x South East	0.226	(0.057)**	0.039	(0.011)**	0.218	(0.046)**	-0.051	(0.019)**
Indian x South West	0.055	(0.140)	-0.023	(0.021)	-0.283	(0.096)**	-0.026	(0.032)
Indian x West Midlands	0.415	(0.045)**	-0.038	(0.013)**	0.216	(0.060)**	-0.044	(0.017)*
Indian x Yorkshire	0.133	(0.080)	-0.093	(0.024)**	0.616	(0.065)**	0.041	(0.026)
(Ref Pakistani x London)								
Pakistani x East Midlands	0.120	(0.100)	-0.165	(0.057)**	0.027	(0.129)	0.109	(0.029)**
Pakistani x East of England	0.237	(0.095)*	-0.129	(0.044)**	-0.195	(0.132)	0.096	(0.024)**
Pakistani x North East	-0.230	(0.134)	-0.087	(0.062)	1.193	(0.119)**	0.030	(0.030)
Pakistani x North West	0.217	(0.064)**	-0.342	(0.032)**	0.374	(0.086)**	0.135	(0.017)**
Pakistani x South East	0.119	(0.078)	-0.061	(0.030)*	-0.405	(0.130)**	0.124	(0.020)**
Pakistani x South West	-0.193	(0.211)	0.046	(0.066)	-0.536	(0.226)*	0.042	(0.039)
Pakistani x West Midlands	0.542	(0.059)**	-0.469	(0.041)**	-0.226	(0.099)*	0.202	(0.018)**

Pakistani x Yorkshire	0.460	(0.061)**	-0.463	(0.036)**	0.094	(0.100)	0.177	(0.018)**
(Ref Bangladeshi x London)								
Bangladeshi x East Midlands	-0.064	(0.080)	-0.016	(0.016)	-0.125	(0.134)	0.146	(0.029)**
Bangladeshi x East of England	-0.146	(0.088)	0.040	(0.013)**	-0.022	(0.121)	-0.057	(0.032)
Bangladeshi x North East	-0.781	(0.566)	-0.242	(0.107)*	0.619	(0.558)	0.201	(0.105)
Bangladeshi x North West	-0.141	(0.100)	-0.027	(0.021)	-0.090	(0.151)	0.166	(0.035)**
Bangladeshi x South East	-0.157	(0.086)	0.025	(0.014)	0.115	(0.110)	-0.026	(0.031)
Bangladeshi x South West	0.205	(0.113)	-0.038	(0.021)	-0.043	(0.179)	0.089	(0.043)*
Bangladeshi x West Midlands	0.078	(0.050)	-0.015	(0.011)	-0.363	(0.100)**	0.149	(0.024)**
Bangladeshi x Yorkshire	-0.148	(0.081)	-0.013	(0.017)	-0.268	(0.154)	0.183	(0.032)**
(Ref Black Caribbean x London)								
Black Caribbean x East Midlands	-0.139	(0.201)	-0.025	(0.085)	-1.057	(0.542)	0.121	(0.036)**
Black Caribbean x East of England	0.047	(0.127)	-0.091	(0.063)	-0.252	(0.294)	0.111	(0.024)**
Black Caribbean x North East	-0.211	(0.176)	-0.137	(0.099)	1.268	(0.275)**	0.002	(0.034)
Black Caribbean x North West	0.066	(0.111)	-0.167	(0.068)*	0.268	(0.220)	0.090	(0.024)**
Black Caribbean x South East	-0.228	(0.154)	0.032	(0.059)	0.096	(0.207)	0.113	(0.025)**
Black Caribbean x South West	-0.127	(0.212)	0.193	(0.080)*	-0.209	(0.311)	0.013	(0.039)
Black Caribbean x West Midlands	0.374	(0.097)**	-0.316	(0.067)**	-0.145	(0.268)	0.127	(0.023)**
Black Caribbean x Yorkshire	0.231	(0.113)*	-0.296	(0.078)**	0.056	(0.302)	0.129	(0.029)**
(Ref Black African x London)								
Black African x East Midlands	-0.131	(0.126)	-0.123	(0.052)*	-0.033	(0.210)	0.126	(0.041)**
Black African x East of England	-0.186	(0.091)*	0.085	(0.026)**	0.061	(0.137)	-0.052	(0.033)
Black African x North East	-0.106	(0.191)	-0.193	(0.078)*	0.775	(0.323)*	0.203	(0.064)**
Black African x North West	-0.104	(0.095)	-0.046	(0.038)	0.107	(0.166)	0.120	(0.033)**
Black African x South East	-0.229	(0.087)**	0.026	(0.024)	-0.081	(0.115)	0.029	(0.027)
Black African x South West	0.050	(0.131)	-0.071	(0.046)	-0.086	(0.202)	0.031	(0.049)
Black African x West Midlands	-0.100	(0.103)	-0.148	(0.043)**	0.050	(0.165)	0.141	(0.033)**
Black African x Yorkshire	-0.246	(0.121)*	-0.087	(0.056)	-0.540	(0.293)	0.069	(0.044)
(Ref Chinese x London)								
Chinese x East Midlands	0.136	(0.137)	-0.143	(0.042)**	0.512	(0.079)**	0.165	(0.033)**
Chinese x East of England	-0.016	(0.127)	0.017	(0.026)	0.319	(0.064)**	0.044	(0.029)
Chinese x North East	-0.302	(0.199)	0.021	(0.053)	1.402	(0.079)**	0.007	(0.049)
Chinese x North West	-0.037	(0.101)	0.002	(0.027)	0.851	(0.058)**	0.023	(0.028)
Chinese x South East	-0.014	(0.106)	-0.018	(0.021)	0.320	(0.055)**	0.104	(0.024)**
Chinese x South West	-0.156	(0.167)	-0.058	(0.034)	0.434	(0.066)**	0.091	(0.034)**
Chinese x West Midlands	0.342	(0.118)**	-0.217	(0.043)**	0.558	(0.078)**	0.208	(0.031)**
Chinese x Yorkshire	0.054	(0.135)	-0.108	(0.045)*	0.718	(0.080)**	0.056	(0.037)
(Ref Other x London)								
Other x East Midlands	0.184	(0.059)**	-0.019	(0.019)	-0.064	(0.082)	0.021	(0.023)
Other x East of England	-0.001	(0.057)	0.086	(0.013)**	0.047	(0.059)	-0.053	(0.019)**
Other x North East	-0.218	(0.112)	-0.081	(0.037)*	0.415	(0.128)**	0.090	(0.030)**
Other x North West	0.052	(0.050)	-0.026	(0.015)	0.144	(0.064)*	0.004	(0.018)
Other x South East	0.019	(0.047)	0.066	(0.010)**	0.041	(0.046)	0.010	(0.016)
Other x South West	0.031	(0.069)	0.018	(0.016)	-0.073	(0.069)	0.023	(0.022)
Other x West Midlands	0.316	(0.047)**	-0.044	(0.016)**	-0.166	(0.078)*	0.002	(0.021)
Other x Yorkshire	0.098	(0.061)	-0.069	(0.021)**	-0.089	(0.090)	0.062	(0.022)**
Constant	-3.103	(0.015)**	-0.423	(0.004)**	-2.365	(0.020)**	-0.653	(0.012)**
Observations	39856		39856		39856		39856	
Number of clusters	7932		7932		7932		7932	

Robust standard errors in parentheses

* p<=0.05; ** p<=0.01

Source: created by author from the 2001 census

Unemployment rates were lower outside London in 1991 for Black African men and women, and Chinese men. By 2001, these differences were mostly no longer statistically significant. In 1991, unemployment rates were higher outside London for Black Caribbean women, but this was no longer the case in 2001. Black Caribbean men, in comparison, had higher rates of unemployment outside London in 1991, but lower in 2001. For Indian, Other, and Pakistani men and women, unemployment rates were consistently higher outside London in both Census years. For Chinese women, there was little evidence on regional variation in unemployment rates in either census year.

Geographical variation and change over time were also reported for the total employment rate. For Bangladeshi men, total employment rates were higher outside London. For Bangladeshi women, rates tended to be lower. In the West Midlands, the total employment rate for Bangladeshi men and women in both Census years was lower than that in London. For Black African men and women, total employment rates went from higher outside London in 1991, to lower by 2001. Similar was reported for Chinese men, but not for Chinese or Black Caribbean women, who initially had higher rates of total employment outside London in 1991, but no significant geographical variation by 2001. Total employment rates for Indian men and women were not consistently higher or lower outside London, except in Yorkshire, North West and the West Midlands where rates were lower. For men and women in the Other and, especially, the Pakistani group, regional variation did not seem to change between 1991 and 2001. In almost all regions outside London (except for men in the North East in 2001), Pakistani men and women had lower total employment rates.

In comparison, self-employment rate were often higher for men and women from different ethnic groups outside London in both census years. This was especially the case for the Chinese ethnic group, though not for the Black African and Black Caribbean men, who tended to have lower rates outside London (or non-significant regional variation). Self-employment rates for Black

African and Black Caribbean women did not appear to vary regionally in either census year. Gender distinctions were also found for the Bangladeshi group, with higher rates outside London often for men, but lower rates outside London for Bangladeshi women in 1991 except in the North East. For the Pakistani group, higher rates outside London in the North and Yorkshire, but lower rates in the South, were consistent for both men and women.

Rates of economic inactivity *for other reasons* tended to change over time and vary regionally. Rates for Bangladeshi men were lower outside London in both census years, but rates for Bangladeshi women were higher. For Pakistani men, rates tended to be lower outside London in 1991, but became higher than London in 2001. Rates for Pakistani women tended to be higher outside London in both census years. Similar findings were reported for the Black African group. In 1991, there was little regional variation for men, but rates were consistently higher outside London by 2001. There was less change for Black African and Black Caribbean women between census years. By comparison, rates for Chinese tended to be lower outside London in 1991, but higher by 2001. Rates for Indian men and women both tended to be lower outside London in both census years.

Summary of Study 2

Study 1 showed that there were ethnic inequalities in each dependent variable, with considerable gender differences and some evidence on change over time. This study has built on those findings by using Negative Binomial regression models and extended the focus towards exploring regional variation in these inequalities.

This study has provided further evidence that the ethnic and gender inequalities in unemployment, total employment, self employment and economic inactivity *for other reasons* were statistically significant. Furthermore, evidence was presented to show that these inequalities were not consistent throughout all regions of England. For example, total employment rates among Indian men and women were significantly lower in Yorkshire, North West and the West Midlands compared to London. Therefore, when discussing ethnic inequalities in economic activity and inactivity, it is important to acknowledge that these inequalities may be wider (and perhaps more of a policy concern) in some regions than others.

4.4.3 Study 3: To what extent are ethnic inequalities in economic status in England associated with deprivation and co-ethnic concentration at the neighbourhood scale?

This chapter has investigated ethnic inequalities in economic activity and inactivity nationally (Study 1) and regionally (Study 2). The final study in this chapter extends my earlier results from studies 1 and 2 to explore how local neighbourhood characteristics affect these inequalities. Negative-Binomial regression models are used again, but this time, all models are calculated for each ethnic group separately. This is for two reasons.

First, when considering deprivation, it is important to consider that some ethnic groups lived in significantly more deprived neighbourhoods than others. Compared to the White group, other ethnic groups are significantly more likely to live in deprived neighbourhoods, especially Pakistani and Bangladeshi people. Therefore, it is important to calculate separate models for each ethnic group to consider differences in deprivation reference points. For example, a relatively

affluent neighbourhood for the Bangladeshi group on the Townsend deprivation scale may only represent an average neighbourhood for the Indian group. In comparison, a highly deprived neighbourhood for the Chinese group may only be an averagely deprived neighbourhood for the Pakistani group, since the Pakistanis often live in the most deprived localities in England.

The second reason that I calculate ethnic-specific regression models is because the investigation of co-ethnic concentration as the second neighbourhood characteristic. This is partly due to reference points. Segregation theory (Wilson, 1987, Cutler et al., 2008b, Massey and Denton, 1993) suggests that being surrounded by a larger percentage of the same ethnic minority group (higher co-ethnic concentration) could lead to social isolation and decreased opportunities in the labour market, especially if the concentration is in deprived neighbourhoods. Alternatively, ethnic enclave theory suggests that higher co-ethnic concentration could also have positive benefits, such as increasing possibilities for self employment in niche labour markets and higher social capital within ethnic groups (Wilson and Portes, 1980, Peach, 1996b, Cutler et al., 2008b). These theories (ethnic enclave and ethnic segregation) suggest it is potentially important whether a person is living along with other people from the same ethnic group in a neighbourhood.

Finally, the third point to mention about the analyses in this study is that they are focused on non-White ethnic groups. This is because the aforementioned theories for co-ethnic concentration are not applicable to the White group, as it is nationally-recognised ethnic minority status that is important. The Other ethnic group is also omitted from further analyses, as it is too heterogeneous to provide any useful interpretations.

Descriptive statistics for the co-ethnic concentration variable, by ethnic group, are illustrated in Table 4-11. There is a considerable variation. For instance, the highest concentration of any of these ethnic groups in 1991 or 2001 was the Indian group, at 67% (1991) and 74% (2001). The geographical concentration of Pakistani and Bangladeshi groups was similar to the Indians. In

comparison, the Chinese appeared the least concentrated, with maximum concentrations reported at only 5.6% (1991) and 7% (2001). There were changes in the level of maximum concentrations between 1991 and 2001. However, it is difficult to say whether these changes were real because the geographic boundaries used to calculate these measures changed between 1991 and 2001. The ward boundaries were not harmonised, unlike the region boundaries in study 2. Therefore, these measures were not technically comparable over time. They are relevant only to the census data reported in the same year.

Table 4.11: Summary of ethnic-concentration measures: Non-White ethnic concentration and same-ethnic concentration, 1991 and 2001

Ethnic group	Mean	Std. Dev.	Min	Max
1991				
Indian	1.69	4.75	0.00	67.02
Pakistani	0.82	3.01	0.00	52.77
Bangladeshi	0.34	1.93	0.00	60.70
Black Caribbean	1.03	2.56	0.00	25.95
Black African	0.47	1.34	0.00	26.58
Chinese	0.32	0.42	0.00	5.56
2001				
Indian	1.86	4.84	0.00	74.15
Pakistani	1.15	4.00	0.00	66.74
Bangladeshi	0.48	2.51	0.00	58.08
Black Caribbean	0.94	2.33	0.00	22.81
Black African	0.83	2.40	0.00	35.70
Chinese	0.45	0.57	0.00	7.05

Source: Author calculated from 1991 and 2001 Censuses, tables: LBS09 and ST108

Tables 4-12 to 4-15 illustrate the effect of deprivation on each dependent variable, for Indian, Pakistani, Bangladeshi, Black Caribbean, Black African and Chinese men and women, in 1991 and 2001. Table 4-12 shows positive coefficients across ethnic groups for unemployment. This

provides consistent evidence that more deprived neighbourhoods had significantly higher levels of unemployment for all ethnic and gender groups considered in both census years.

Meanwhile, in Table 4-13, negative coefficients imply that more deprived neighbourhoods had significantly lower levels of total employment, in both census years for all ethnic groups considered. For self employment (Table 4-14), deprivation was often associated with lower rates, but not always. For example, deprivation was not significantly associated with self employment among Pakistani men in 2001, Pakistani and Bangladeshi women in 1991 and 2001. In other words, for these groups, the rate of self employment did not vary significantly between deprived and affluent neighbourhoods.

Table 4-15 shows more deprived neighbourhoods often had higher rates of economic inactivity *for other reasons*. However, this was not always the case, with non-significant associations found for Black African men in 1991 and Chinese women in both census years.

Table 4.12: Unemployment and deprivation: Negative-Binomial regression with adjustment for clustering within Wards (models stratified by Census year and gender)

	Indian		Pakistani		Bangladeshi		Black Caribbean		Black African		Chinese	
	Coef	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**
1991 Men												
Deprivation	0.101	(0.003)**	0.078	(0.003)**	0.122	(0.005)**	0.083	(0.002)**	0.084	(0.004)**	0.127	(0.005)**
Constant	-2.512	(0.015)**	-1.770	(0.020)**	-2.120	(0.039)**	-1.934	(0.014)**	-1.798	(0.027)**	-2.811	(0.032)**
Observations	5462		3412		2634		4611		3709		4826	
2001 Men												
Deprivation	0.082	(0.004)**	0.055	(0.004)**	0.088	(0.007)**	0.098	(0.004)**	0.078	(0.004)**	0.091	(0.008)**
Constant	-3.220	(0.025)**	-2.463	(0.028)**	-2.722	(0.054)**	-2.523	(0.026)**	-2.459	(0.032)**	-3.301	(0.048)**
Observations	5654		3725		2843		4399		3813		5025	
1991 Women												
Deprivation	0.072	(0.003)**	0.075	(0.004)**	0.092	(0.006)**	0.086	(0.003)**	0.079	(0.004)**	0.118	(0.006)**
Constant	-2.392	(0.015)**	-1.725	(0.026)**	-1.815	(0.050)**	-2.537	(0.020)**	-1.967	(0.029)**	-2.938	(0.036)**
Observations	5332		3057		2266		4470		3595		5239	
2001 Women												
Deprivation	0.054	(0.004)**	0.058	(0.005)**	0.073	(0.008)**	0.067	(0.004)**	0.067	(0.004)**	0.075	(0.008)**
Constant	-3.041	(0.025)**	-2.427	(0.036)**	-2.523	(0.062)**	-3.002	(0.032)**	-2.599	(0.036)**	-3.268	(0.046)**
Observations	5528		3419		2538		4137		3718		5342	

Robust standard errors in parentheses

* p<=0.05; ** p<=0.01

Source: created by the author using 1991 and 2001 census data

Table 4.13: Total employment and deprivation: Negative-Binomial regression with adjustment for clustering within Wards (models stratified by Census year and gender)

	Indian		Pakistani		Bangladeshi		Black Caribbean		Black African		Chinese	
	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)
1991 Men												
Deprivation	-0.023	(0.001)**	-0.034	(0.001)**	-0.052	(0.002)**	-0.028	(0.001)**	-0.036	(0.002)**	-0.033	(0.002)**
Constant	-0.268	(0.003)**	-0.460	(0.007)**	-0.344	(0.010)**	-0.288	(0.006)**	-0.515	(0.010)**	-0.318	(0.005)**
Observations	5462		3412		2634		4611		3709		4826	
2001 Men												
Deprivation	-0.022	(0.001)**	-0.020	(0.001)**	-0.026	(0.001)**	-0.026	(0.001)**	-0.028	(0.002)**	-0.027	(0.002)**
Constant	-0.288	(0.003)**	-0.470	(0.005)**	-0.429	(0.009)**	-0.325	(0.005)**	-0.516	(0.008)**	-0.412	(0.006)**
Observations	5654		3725		2843		4399		3813		5025	
1991 Women												
Deprivation	-0.027	(0.001)**	-0.049	(0.003)**	-0.061	(0.005)**	-0.024	(0.001)**	-0.026	(0.002)**	-0.031	(0.002)**
Constant	-0.580	(0.004)**	-1.224	(0.015)**	-1.536	(0.029)**	-0.350	(0.005)**	-0.665	(0.010)**	-0.603	(0.006)**
Observations	5332		3057		2266		4470		3595		5239	
2001 Women												
Deprivation	-0.030	(0.001)**	-0.038	(0.002)**	-0.049	(0.003)**	-0.017	(0.001)**	-0.027	(0.002)**	-0.030	(0.002)**
Constant	-0.503	(0.004)**	-1.092	(0.012)**	-1.277	(0.023)**	-0.379	(0.005)**	-0.678	(0.009)**	-0.583	(0.006)**
Observations	5528		3419		2538		4137		3718		5342	

Robust standard errors in parentheses

* p<=0.05; ** p<=0.01

Source: created by the author using 1991 and 2001 census data

Table 4.14: Self employment and deprivation: Negative-Binomial regression with adjustment for clustering within Wards (models stratified by Census year and gender)

	Indian		Pakistani		Bangladeshi		Black Caribbean		Black African		Chinese	
	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)
1991 Men												
Deprivation	-0.029	(0.002)**	-0.021	(0.003)**	-0.064	(0.004)**	-0.045	(0.003)**	-0.018	(0.004)**	-0.042	(0.003)**
Constant	-1.162	(0.009)**	-1.251	(0.017)**	-1.239	(0.022)**	-2.055	(0.017)**	-2.040	(0.029)**	-1.048	(0.011)**
Observations	5462		3412		2634		4611		3709		4826	
2001 Men												
Deprivation	-0.031	(0.002)**	-0.003	(0.002)	-0.051	(0.003)**	-0.018	(0.003)**	-0.009	(0.004)*	-0.040	(0.003)**
Constant	-1.309	(0.010)**	-1.292	(0.014)**	-1.316	(0.024)**	-1.986	(0.020)**	-2.040	(0.029)**	-1.058	(0.011)**
Observations	5654		3725		2843		4399		3813		5025	
1991 Women												
Deprivation	-0.023	(0.004)**	-0.005	(0.006)	-0.003	(0.011)	-0.070	(0.008)**	-0.028	(0.008)**	-0.022	(0.004)**
Constant	-1.652	(0.015)**	-1.948	(0.034)**	-2.622	(0.078)**	-3.573	(0.048)**	-3.096	(0.056)**	-1.574	(0.018)**
Observations	5332		3057		2266		4470		3595		5239	
2001 Women												
Deprivation	-0.026	(0.004)**	-0.006	(0.007)	-0.022	(0.014)	-0.039	(0.007)**	-0.033	(0.007)**	-0.027	(0.005)**

Constant	-1.802	(0.017)**	-2.284	(0.041)**	-2.833	(0.084)**	-3.124	(0.048)**	-2.842	(0.049)**	-1.553	(0.019)**
Observations	5528		3419		2538		4137		3718		5342	

Robust standard errors in parentheses

* p<=0.05; ** p<=0.01

Source: created by the author using 1991 and 2001 census data

Table 4.15: Economic inactive other and deprivation: Negative-Binomial regression with adjustment for clustering within Wards (models stratified by Census year and gender)

	Indian		**Pakistani**		**Bangladeshi**		**Black Caribbean**		**Black African**		**Chinese**	
	Coef	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**
1991 Men												
Deprivation	0.056	(0.009)**	0.030	(0.011)**	0.058	(0.013)**	-0.031	(0.013)*	0.009	(0.011)	0.061	(0.012)**
Constant	-4.555	(0.055)**	-3.909	(0.073)**	-3.980	(0.106)**	-3.898	(0.093)**	-3.227	(0.069)**	-4.395	(0.070)**
Observations	5462		3412		2634		4611		3709		4826	
2001 Men												
Deprivation	0.048	(0.005)**	0.023	(0.005)**	0.044	(0.006)**	0.041	(0.006)**	0.053	(0.006)**	0.037	(0.008)**
Constant	-3.312	(0.030)**	-2.628	(0.034)**	-2.686	(0.050)**	-2.780	(0.037)**	-2.794	(0.042)**	-3.321	(0.046)**
Observations	5654		3725		2843		4399		3813		5025	
1991 Women												
Deprivation	0.028	(0.002)**	0.017	(0.002)**	0.013	(0.002)**	0.034	(0.002)**	0.008	(0.003)**	0.005	(0.003)
Constant	-1.425	(0.009)**	-0.689	(0.010)**	-0.553	(0.013)**	-2.049	(0.017)**	-1.591	(0.019)**	-1.372	(0.011)**
Observations	5332		3057		2266		4470		3595		5239	
2001 Women												
Deprivation	0.029	(0.002)**	0.015	(0.002)**	0.013	(0.001)**	0.020	(0.003)**	0.033	(0.003)**	0.003	(0.003)
Constant	-1.691	(0.011)**	-0.859	(0.010)**	-0.691	(0.013)**	-2.039	(0.023)**	-1.815	(0.022)**	-1.669	(0.016)**
Observations	5528		3419		2538		4137		3718		5342	

Robust standard errors in parentheses

* p<=0.05; ** p<=0.01

Source: created by the author using 1991 and 2001 census data

Tables 4-16 to 4-19 illustrate the results of these models after further adjustment for co-ethnic concentration. This means that the effect of deprivation on each dependent variable can now be considered as independent of co-ethnic concentration. The effect of co-ethnic concentration can also be interpreted as independent of deprivation. For unemployment, Table 4-16 shows a significantly positive association with deprivation. There were higher unemployment rates in more deprived neighbourhoods, across all ethnic groups. Co-ethnic concentration was independently associated with unemployment after controlling for deprivation for most ethnic

groups, almost always positively. This means that there was more unemployment in more deprived neighbourhoods. Furthermore, there was also often higher unemployment in more co-ethnically concentrated neighbourhoods too. A significant negative association between co-ethnic concentration and unemployment was found only for Chinese men. For Black Caribbean men and women in 1991, Bangladeshi and Black African men in 2001, and Indian, Black Caribbean and Chinese women in 2001, there was no significant association between unemployment and co-ethnic concentration.

Table 4-17 shows the results for total employment. Deprivation continued to be negatively associated with total employment rates for all ethnic groups. For many ethnic groups, living among a higher percentage of the same ethnic group was also associated with a lower total employment rate. This was significant for all groups except for Indian and Black Caribbean men in 2001 and Black African women in 2001. In comparison, a high co-ethnic concentration was positively associated with the total employment rate for Black Caribbean men in 1991 and women in 1991 and 2001.

Table 4-18 shows the results for self employment. As previously reported, lower levels of self employment were observed in more deprived neighbourhoods for most ethnic groups. For Pakistani men in 2001, Indian and Pakistani women in 1991, and Black Caribbean and Black African women in 2001, the self employment rates did not vary significantly by neighbourhood deprivation. Significantly negative associations were found between co-ethnic concentration and self employment. The opposite (a positive association) was found, however, for Black African men in 1991 and 2001.

Table 4-19 showed the results for economic inactivity *for other reasons*. There were often higher rates of inactivity in more deprived neighbourhoods. This was not the case for Black African men in 1991. For Black African men in 1991, economic inactivity *for other reasons* was less

common in more deprived neighbourhoods, but more common in a higher level of co-ethnic concentration. There was also a positive association between inactivity *for other reasons* and co-ethnic concentration for Pakistani men in 2001, Indian women in 1991, and Pakistani women in 1991 and 2001. For the Bangladeshis, Black Caribbeans, Black Africans and Chinese, the association between economic inactivity *for other reasons* and co-ethnic concentration was often negative.

Table 4.16: Unemployment, deprivation, and co-ethnic concentration: Negative-Binomial regression with adjustment for clustering within Wards (models stratified by Census year and gender)

	Indian		Pakistani		Bangladeshi		Black Caribbean		Black African		Chinese	
	Coef	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**
Men 1991												
Co-ethnic % (log)	0.099	(0.009)**	0.115	(0.008)**	0.177	(0.018)**	0.000	(0.008)	0.117	(0.012)**	0.123	(0.028)**
Deprivation	0.093	(0.003)**	0.058	(0.003)**	0.078	(0.007)**	0.083	(0.003)**	0.055	(0.005)**	0.116	(0.006)**
Constant	-2.583	(0.017)**	-1.767	(0.019)**	-1.864	(0.043)**	-1.934	(0.014)**	-1.673	(0.029)**	-2.683	(0.042)**
Observations	5462		3412		2634		4611		3709		4826	
Men 2001												
Co-ethnic % (log)	0.043	(0.018)*	0.069	(0.015)**	0.053	(0.035)	0.053	(0.017)**	0.018	(0.018)	-0.092	(0.045)*
Deprivation	0.078	(0.004)**	0.045	(0.005)**	0.079	(0.010)**	0.088	(0.005)**	0.075	(0.006)**	0.096	(0.009)**
Constant	-3.233	(0.029)**	-2.451	(0.027)**	-2.658	(0.064)**	-2.503	(0.025)**	-2.447	(0.031)**	-3.388	(0.057)**
Observations	5654		3725		2843		4399		3813		5025	
Women 1991												
Co-ethnic % (log)	0.085	(0.008)**	0.157	(0.010)**	0.167	(0.023)**	0.015	(0.011)	0.182	(0.015)**	0.182	(0.031)**
Deprivation	0.064	(0.003)**	0.045	(0.004)**	0.046	(0.008)**	0.083	(0.004)**	0.033	(0.005)**	0.099	(0.007)**
Constant	-2.474	(0.018)**	-1.733	(0.025)**	-1.589	(0.054)**	-2.538	(0.021)**	-1.812	(0.028)**	-2.743	(0.047)**
Observations	5332		3057		2266		4470		3595		5239	
Women 2001												
Co-ethnic % (log)	0.026	(0.019)	0.106	(0.020)**	0.116	(0.038)**	0.034	(0.021)	0.055	(0.021)**	0.012	(0.046)
Deprivation	0.052	(0.005)**	0.043	(0.006)**	0.052	(0.011)**	0.061	(0.005)**	0.055	(0.006)**	0.075	(0.009)**
Constant	-3.048	(0.028)**	-2.412	(0.036)**	-2.385	(0.070)**	-2.996	(0.031)**	-2.570	(0.033)**	-3.256	(0.056)**
Observations	5528		3419		2538		4137		3718		5342	

Robust standard errors in parentheses

* p<=0.05; ** p<=0.01

Source: created by the author using 1991 and 2001 census data

Table 4.17: Total employment, deprivation, and co-ethnic concentration: Negative-Binomial regression with adjustment for clustering within Wards (models stratified by Census year and gender)

	Indian		Pakistani		Bangladeshi		Black Caribbean		Black African		Chinese	
	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)
Men 1991												
Co-ethnic % (log)	-0.008	(0.002)**	-0.037	(0.003)**	-0.070	(0.007)**	0.014	(0.003)**	-0.061	(0.007)**	-0.090	(0.009)**
Deprivation	-0.022	(0.001)**	-0.025	(0.001)**	-0.031	(0.002)**	-0.031	(0.001)**	-0.020	(0.003)**	-0.025	(0.002)**
Constant	-0.260	(0.003)**	-0.458	(0.006)**	-0.445	(0.014)**	-0.287	(0.006)**	-0.591	(0.015)**	-0.411	(0.013)**
Observations	5462		3412		2634		4611		3709		4826	
Men 2001												
Co-ethnic % (log)	-0.003	(0.002)	-0.014	(0.003)**	-0.031	(0.007)**	-0.007	(0.004)	0.020	(0.006)**	-0.133	(0.009)**
Deprivation	-0.022	(0.001)**	-0.018	(0.001)**	-0.020	(0.002)**	-0.024	(0.001)**	-0.032	(0.002)**	-0.018	(0.002)**
Constant	-0.287	(0.003)**	-0.465	(0.006)**	-0.461	(0.011)**	-0.326	(0.005)**	-0.503	(0.008)**	-0.526	(0.012)**
Observations	5654		3725		2843		4399		3813		5025	
Women 1991												
Co-ethnic % (log)	-0.018	(0.003)**	-0.166	(0.007)**	-0.173	(0.017)**	0.029	(0.003)**	-0.021	(0.006)**	-0.075	(0.008)**
Deprivation	-0.025	(0.001)**	-0.021	(0.003)**	-0.021	(0.007)**	-0.031	(0.001)**	-0.021	(0.002)**	-0.023	(0.002)**
Constant	-0.570	(0.004)**	-1.305	(0.014)**	-1.778	(0.042)**	-0.351	(0.005)**	-0.685	(0.012)**	-0.678	(0.012)**
Observations	5332		3057		2266		4470		3595		5239	
Women 2001												
Co-ethnic % (log)	-0.009	(0.003)**	-0.135	(0.007)**	-0.084	(0.018)**	0.026	(0.004)**	0.008	(0.007)	-0.135	(0.009)**
Deprivation	-0.029	(0.001)**	-0.019	(0.002)**	-0.033	(0.005)**	-0.021	(0.001)**	-0.029	(0.002)**	-0.021	(0.002)**
Constant	-0.499	(0.004)**	-1.132	(0.011)**	-1.386	(0.030)**	-0.385	(0.004)**	-0.673	(0.009)**	-0.699	(0.011)**
Observations	5528		3419		2538		4137		3718		5342	

Robust standard errors in parentheses

* p<=0.05; ** p<=0.01

Source: created by the author using 1991 and 2001 census data

Table 4.18: Self employment, deprivation, and co-ethnic concentration: Negative-Binomial regression with adjustment for clustering within Wards (models stratified by Census year and gender)

	Indian		Pakistani		Bangladeshi		Black Caribbean		Black African		Chinese	
	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)
Men 1991												
Co-ethnic % (log)	-0.101	(0.006)**	-0.038	(0.009)**	-0.019	(0.011)	-0.094	(0.015)**	0.053	(0.018)**	-0.226	(0.011)**
Deprivation	-0.019	(0.002)**	-0.013	(0.004)**	-0.040	(0.004)**	-0.041	(0.006)**	-0.032	(0.007)**	-0.022	(0.003)**
Constant	-1.151	(0.009)**	-1.271	(0.018)**	-2.061	(0.017)**	-1.387	(0.033)**	-1.979	(0.036)**	-1.299	(0.018)**
Observations	5462		3412		4611		2634		3709		4826	
Men 2001												
Co-ethnic % (log)	-0.095	(0.007)**	0.012	(0.009)	0.014	(0.015)	-0.047	(0.019)*	0.098	(0.021)**	-0.213	(0.013)**
Deprivation	-0.021	(0.002)**	-0.005	(0.003)	-0.021	(0.004)**	-0.042	(0.005)**	-0.030	(0.006)**	-0.026	(0.003)**
Constant	-1.298	(0.010)**	-1.291	(0.014)**	-1.979	(0.019)**	-1.377	(0.032)**	-1.964	(0.028)**	-1.246	(0.015)**
Observations	5654		3725		4399		2843		3813		5025	
Women 1991												
Co-ethnic % (log)	-0.240	(0.008)**	-0.007	(0.017)	-0.181	(0.026)**	0.027	(0.042)	-0.061	(0.032)	-0.183	(0.017)**
Deprivation	0.000	(0.003)	-0.003	(0.008)	-0.020	(0.010)*	-0.011	(0.016)	-0.011	(0.012)	-0.005	(0.004)
Constant	-1.672	(0.012)**	-1.952	(0.035)**	-3.657	(0.042)**	-2.579	(0.097)**	-3.171	(0.065)**	-1.804	(0.027)**
Observations	5332		3057		4470		2266		3595		5239	

Women 2001												
Co-ethnic % (log)	-0.228	(0.010)**	-0.074	(0.022)**	-0.068	(0.032)*	-0.078	(0.062)	0.014	(0.034)	-0.151	(0.021)**
Deprivation	-0.007	(0.003)*	0.005	(0.008)	-0.025	(0.010)*	-0.009	(0.019)	-0.036	(0.011)**	-0.018	(0.005)**
Constant	-1.837	(0.014)**	-2.321	(0.038)**	-3.167	(0.045)**	-2.940	(0.119)**	-2.831	(0.050)**	-1.703	(0.025)**
Observations	5528		3419		4137		2538		3718		5342	

Robust standard errors in parentheses

* p<=0.05; ** p<=0.01

Source: created by the author using 1991 and 2001 census data

Table 4.19: Economic inactive other, deprivation, and co-ethnic concentration: Negative-Binomial regression with adjustment for clustering within Wards (models stratified by Census year and gender)

	Indian		**Pakistani**		**Bangladeshi**		**Black Caribbean**		**Black African**		**Chinese**	
	Coef	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**
Men 1991												
Co-ethnic % (log)	-0.064	(0.024)**	-0.046	(0.022)*	0.099	(0.051)	-0.025	(0.053)	0.348	(0.041)**	0.100	(0.061)
Deprivation	0.062	(0.008)**	0.039	(0.010)**	0.035	(0.020)	-0.025	(0.022)	-0.074	(0.016)**	0.052	(0.013)**
Constant	-4.513	(0.059)**	-3.913	(0.067)**	-3.851	(0.136)**	-3.914	(0.111)**	-2.850	(0.090)**	-4.292	(0.085)**
Observations	5462		3412		2634		4611		3709		4826	
Men 2001												
Co-ethnic % (log)	0.023	(0.019)	0.025	(0.018)	0.029	(0.033)	0.097	(0.028)**	-0.063	(0.023)**	-0.053	(0.047)
Deprivation	0.046	(0.005)**	0.020	(0.006)**	0.039	(0.008)**	0.024	(0.008)**	0.063	(0.008)**	0.040	(0.009)**
Constant	-3.314	(0.032)**	-2.618	(0.033)**	-2.650	(0.054)**	-2.720	(0.041)**	-2.850	(0.045)**	-3.372	(0.056)**
Observations	5654		3725		2843		4399		3813		5025	
Women 1991												
Co-ethnic % (log)	0.014	(0.006)*	0.088	(0.004)**	n/a		-0.080	(0.009)**	-0.043	(0.010)**	-0.004	(0.013)
Deprivation	0.026	(0.002)**	0.000	(0.002)			0.053	(0.003)**	0.019	(0.004)**	0.006	(0.003)*
Constant	-1.431	(0.009)**	-0.699	(0.009)**			-2.067	(0.016)**	-1.634	(0.022)**	-1.377	(0.018)**
Observations	5332		3057		2266		4470		3595		5239	
Women 2001												
Co-ethnic % (log)	0.007	(0.008)	0.105	(0.005)**	0.062	(0.007)**	-0.051	(0.013)**	-0.011	(0.014)	-0.040	(0.019)*
Deprivation	0.028	(0.002)**	0.000	(0.001)	0.000	(0.002)	0.030	(0.004)**	0.035	(0.004)**	0.006	(0.003)
Constant	-1.692	(0.011)**	-0.872	(0.009)**	-0.635	(0.013)**	-2.062	(0.019)**	-1.824	(0.022)**	-1.705	(0.021)**
Observations	5528		3419		2538		4137		3718		5342	

Robust standard errors in parentheses

* p<=0.05; ** p<=0.01

Source: created by the author using 1991 and 2001 census data

Since the main effects of deprivation and co-ethnic concentration have been examined, the final stage of my analysis in this study turns to interactions. Tables 4-20 to 4-23 illustrate the results of models where I have interacted deprivation with co-ethnic concentration. Table 4-20 shows the

results of unemployment. Statistically significant interactions were negative for all ethnic groups. My interpretation of this interaction is that in more deprived and co-ethnically concentrated neighbourhoods, the unemployment rate was lower in comparison to deprived neighbourhoods which were not as co-ethnically concentrated. This interaction was significant for all groups, except for Indian and Chinese men in 1991 and 2001, Pakistani men in 2001, Indian, Black Caribbean and Chinese women in 1991 and 2001, and Pakistani women in 2001.

Table 4-21 shows the results of the interaction between co-ethnic concentration and deprivation for total employment. For example, for Indian men in 1991, the interaction was significantly negative. This means that rates of employment were lower in deprived neighbourhoods that also had a high co-ethnic concentration. Compare this with the interaction between deprivation and co-ethnic concentration for Indian men in 2001. The interaction was positive, meaning that employment rates were higher in deprived neighbourhoods with a higher level of co-ethnic concentration. Among men, positive interactions were also found for Pakistanis in 2001, Bangladeshis and Black Africans in 1991 and 2001, and Black Caribbeans in 2001. Negative interactions were found for Black African and Chinese men in 1991. Among women significant interactions were found to be mostly negative, although there were positive interactions for Bangladeshis in 2001, and Black Africans in 1991 and 2001.

The results of the interaction between deprivation and co-ethnic concentration for self employment are showed in table 4-22. For men and women, significant interactions were mostly negative, meaning lower self employment rates in deprived neighbourhoods with a higher co-ethnic concentration. In comparison, positive interaction was found for Black Caribbeans (higher self employment rates in deprived neighbourhoods with more co-ethnic concentration).

Table 4-23 illustrates the results for economic inactivity *for other reasons*. For men, there were few significant interactions between deprivation and co-ethnic concentration, negatively for

Chinese men in 1991, and positively for Black Caribbean and Black African men in 2001. For women (the Bangladeshi model failed to calculate; results marked n/a), there was more evidence on significant interactions than were observed among men. Positive interactions were found for Indian, Black Caribbean and Chinese women in 1991 and 2001. This means that for these women, higher rates of inactivity *for other reasons* were found in deprived neighbourhoods with higher levels of co-ethnic concentration. In comparison, significantly negative interactions were found for Pakistani women in 1991 and Black African women in 1991 and 2001.

Table 4.20: Unemployment, deprivation x co-ethnic concentration: Negative-Binomial regression with adjustment for clustering within Wards (models stratified by Census year and gender)

	Indian		Pakistani		Bangladeshi		Black Caribbean		Black African		Chinese	
	Coef	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**
Men 1991												
Co-ethnic % (log)	0.101	(0.012)**	0.177	(0.012)**	0.356	(0.024)**	0.037	(0.010)**	0.242	(0.018)**	0.085	(0.038)*
Deprivation	0.093	(0.003)**	0.065	(0.003)**	0.069	(0.005)**	0.090	(0.003)**	0.058	(0.004)**	0.121	(0.006)**
Interaction	-0.001	(0.002)	-0.013	(0.002)**	-0.027	(0.002)**	-0.009	(0.001)**	-0.026	(0.002)**	0.009	(0.005)
Constant	-2.584	(0.017)**	-1.773	(0.019)**	-1.717	(0.037)**	-1.937	(0.015)**	-1.594	(0.027)**	-2.720	(0.048)**
Observations	5462		3412		2634		4611		3709		4826	
Men 2001												
Co-ethnic % (log)	0.052	(0.022)*	0.086	(0.020)**	0.103	(0.045)*	0.115	(0.020)**	0.097	(0.024)**	-0.107	(0.055
Deprivation	0.080	(0.006)**	0.047	(0.005)**	0.079	(0.010)**	0.100	(0.005)**	0.082	(0.005)**	0.099	(0.008)**
Interaction	-0.004	(0.004)	-0.004	(0.002)	-0.011	(0.004)*	-0.019	(0.003)**	-0.019	(0.003)**	0.006	(0.009)
Constant	-3.232	(0.029)**	-2.445	(0.026)**	-2.607	(0.063)**	-2.473	(0.024)**	-2.395	(0.028)**	-3.404	(0.063)**
Observations	5654		3725		2843		4399		3813		5025	
Women 1991												
Co-ethnic % (log)	0.076	(0.010)**	0.205	(0.016)**	0.312	(0.035)**	0.031	(0.015)*	0.254	(0.020)**	0.174	(0.040)**
Deprivation	0.061	(0.004)**	0.052	(0.005)**	0.054	(0.009)**	0.087	(0.004)**	0.043	(0.005)**	0.101	(0.007)**
Interaction	0.003	(0.002)	-0.010	(0.002)**	-0.023	(0.003)**	-0.004	(0.002)	-0.016	(0.002)**	0.002	(0.006)
Constant	-2.469	(0.018)**	-1.745	(0.026)**	-1.539	(0.063)**	-2.542	(0.021)**	-1.797	(0.028)**	-2.752	(0.053)**
Observations	5332		3057		2266		4470		3595		5239	
Women 2001												
Co-ethnic % (log)	0.034	(0.022)	0.104	(0.027)**	0.201	(0.049)**	0.042	(0.026	0.092	(0.029)**	0.037	(0.054)
Deprivation	0.054	(0.007)**	0.043	(0.007)**	0.052	(0.011)**	0.063	(0.007)**	0.062	(0.006)**	0.068	(0.008)**
Interaction	-0.003	(0.004)	0.001	(0.004)	-0.016	(0.005)**	-0.003	(0.004)	-0.009	(0.004)*	-0.011	(0.009)
Constant	-3.047	(0.028)**	-2.413	(0.034)**	-2.307	(0.068)**	-2.993	(0.030)**	-2.552	(0.031)**	-3.228	(0.061)**
Observations	5528		3419		2538		4137		3718		5342	

Robust standard errors in parentheses

* p<=0.05; ** p<=0.01

Source: created by the author using 1991 and 2001 census data

Table 4.21: Total employment, deprivation x co-ethnic concentration: Negative-Binomial regression with adjustment for clustering within Wards (models stratified by Census year and gender)

	Indian		Pakistani		Bangladeshi		Black Caribbean		Black African		Chinese	
	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)
Men 1991												
Co-ethnic % (log)	0.000	(0.002)	-0.039	(0.004)**	-0.094	(0.009)**	0.021	(0.004)**	-0.083	(0.008)**	-0.071	(0.011)**
Deprivation	-0.019	(0.001)**	-0.026	(0.001)**	-0.030	(0.002)**	-0.029	(0.001)**	-0.019	(0.003)**	-0.029	(0.003)**
Interaction	-0.003	(0.001)**	0.001	(0.001)	0.004	(0.001)**	-0.002	(0.001)**	0.006	(0.001)**	-0.007	(0.002)**
Constant	-0.263	(0.003)**	-0.459	(0.006)**	-0.476	(0.017)**	-0.285	(0.005)**	-0.624	(0.018)**	-0.388	(0.016)**
Observations	5462		3412		2634		4611		3709		4826	
Men 2001												
Co-ethnic % (log)	-0.008	(0.002)**	-0.018	(0.003)**	-0.043	(0.007)**	-0.013	(0.004)**	-0.018	(0.006)**	-0.135	(0.010)**
Deprivation	-0.024	(0.001)**	-0.020	(0.001)**	-0.021	(0.002)**	-0.028	(0.002)**	-0.041	(0.002)**	-0.018	(0.002)**
Interaction	0.002	(0.000)**	0.001	(0.001)*	0.002	(0.001)**	0.003	(0.001)**	0.013	(0.001)**	0.001	(0.002)
Constant	-0.287	(0.003)**	-0.464	(0.006)**	-0.466	(0.012)**	-0.330	(0.006)**	-0.542	(0.009)**	-0.530	(0.013)**
Observations	5654		3725		2843		4399		3813		5025	
Women 1991												
Co-ethnic % (log)	-0.002	(0.004)	-0.153	(0.009)**	-0.176	(0.025)**	0.038	(0.003)**	-0.032	(0.007)**	-0.051	(0.009)**
Deprivation	-0.020	(0.001)**	-0.021	(0.003)**	-0.021	(0.007)**	-0.027	(0.001)**	-0.022	(0.002)**	-0.029	(0.003)**
Interaction	-0.007	(0.001)**	-0.003	(0.001)*	0.001	(0.002)	-0.003	(0.001)**	0.003	(0.001)**	-0.010	(0.002)**
Constant	-0.568	(0.004)**	-1.294	(0.015)**	-1.783	(0.050)**	-0.352	(0.004)**	-0.695	(0.013)**	-0.646	(0.013)**
Observations	5332		3057		2266		4470		3595		5239	
Women 2001												
Co-ethnic % (log)	-0.007	(0.003)*	-0.124	(0.008)**	-0.104	(0.020)**	0.026	(0.004)**	-0.022	(0.007)**	-0.133	(0.010)**
Deprivation	-0.028	(0.001)**	-0.018	(0.002)**	-0.033	(0.005)**	-0.022	(0.001)**	-0.037	(0.003)**	-0.021	(0.002)**
Interaction	-0.001	(0.001)	-0.003	(0.001)**	0.004	(0.002)*	0.000	(0.001)	0.010	(0.001)**	-0.001	(0.002)
Constant	-0.499	(0.004)**	-1.127	(0.011)**	-1.409	(0.032)**	-0.385	(0.004)**	-0.701	(0.010)**	-0.698	(0.012)**
Observations	5528		3419		2538		4137		3718		5342	

Robust standard errors in parentheses

* p<=0.05; ** p<=0.01

Source: created by the author using 1991 and 2001 census data

Table 4.22: Self employment, deprivation x co-ethnic concentration: Negative-Binomial regression with adjustment for clustering within Wards (models stratified by Census year and gender)

	Indian		Pakistani		Bangladeshi		Black Caribbean		Black African		Chinese	
	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)	Coef	(SE)
Men 1991												
Co-ethnic % (log)	-0.068	(0.007)**	-0.031	(0.011)**	-0.046	(0.020)*	-0.021	(0.012)	0.070	(0.021)**	-0.177	(0.013)**
Deprivation	-0.012	(0.002)**	-0.013	(0.004)**	-0.046	(0.006)**	-0.041	(0.005)**	-0.031	(0.007)**	-0.037	(0.004)**
Interaction	-0.015	(0.002)**	-0.002	(0.002)	-0.009	(0.003)**	0.001	(0.002)	-0.005	(0.003)	-0.020	(0.003)**
Constant	-1.134	(0.009)**	-1.264	(0.020)**	-1.307	(0.040)**	-2.063	(0.018)**	-1.956	(0.037)**	-1.233	(0.020)**
Observations	5462		3412		2634		4611		3709		4826	
Men 2001												
Co-ethnic % (log)	-0.080	(0.007)**	0.026	(0.011)*	-0.051	(0.022)*	-0.006	(0.016)	0.090	(0.022)**	-0.195	(0.014)**
Deprivation	-0.015	(0.002)**	-0.003	(0.003)	-0.042	(0.005)**	-0.029	(0.006)**	-0.031	(0.007)**	-0.030	(0.003)**
Interaction	-0.008	(0.002)**	-0.004	(0.001)**	0.001	(0.002)	0.011	(0.003)**	0.003	(0.003)	-0.010	(0.003)**
Constant	-1.290	(0.010)**	-1.285	(0.014)**	-1.381	(0.033)**	-2.008	(0.019)**	-1.975	(0.027)**	-1.224	(0.016)**
Observations	5654		3725		2843		4399		3813		5025	

Women 1991												
Co-ethnic % (log)	-0.203	(0.009)**	0.007	(0.021)	0.044	(0.063)	-0.220	(0.028)**	-0.095	(0.037)*	-0.125	(0.018)**
Deprivation	0.007	(0.003)*	-0.004	(0.007)	-0.012	(0.016)	-0.032	(0.012)**	-0.011	(0.012)	-0.029	(0.006)**
Interaction	-0.017	(0.002)**	-0.004	(0.003)	-0.003	(0.007)	0.017	(0.005)**	0.010	(0.005)	-0.028	(0.004)**
Constant	-1.653	(0.013)**	-1.938	(0.037)**	-2.553	(0.114)**	-3.716	(0.043)**	-3.226	(0.070)**	-1.709	(0.029)**
Observations	5332		3057		2266		4470		3595		5239	
Women 2001												
Co-ethnic % (log)	-0.199	(0.011)**	-0.050	(0.027)	-0.057	(0.074)	-0.094	(0.035)**	-0.027	(0.037)	-0.120	(0.022)**
Deprivation	0.002	(0.004)	0.006	(0.008)	-0.011	(0.018)	-0.032	(0.012)**	-0.044	(0.013)**	-0.028	(0.005)**
Interaction	-0.017	(0.002)**	-0.007	(0.004)	-0.005	(0.007)	0.013	(0.006)*	0.015	(0.006)**	-0.019	(0.005)**
Constant	-1.816	(0.014)**	-2.301	(0.038)**	-2.912	(0.128)**	-3.209	(0.045)**	-2.892	(0.050)**	-1.662	(0.027)**
Observations	5528		3419		2538		4137		3718		5342	

Robust standard errors in parentheses

* p<=0.05; ** p<=0.01

Source: created by the author using 1991 and 2001 census data

Table 4.23: Economic inactive other, deprivation x co-ethnic concentration: Negative-Binomial regression with adjustment for clustering within Wards (models stratified by Census year and gender)

	Indian		**Pakistani**		**Bangladeshi**		**Black Caribbean**		**Black African**		**Chinese**	
	Coef	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**	**Coef**	**(SE)**
Men 1991												
Co-ethnic % (log)	-0.081	(0.036)*	-0.086	(0.035)*	0.182	(0.082)*	-0.017	(0.068)	0.368	(0.054)**	-0.030	(0.077)
Deprivation	0.058	(0.011)**	0.036	(0.010)**	0.031	(0.020)	-0.024	(0.022)	-0.074	(0.016)**	0.074	(0.014)**
Interaction	0.005	(0.006)	0.009	(0.005)	-0.014	(0.008)	-0.002	(0.009)	-0.006	(0.007)	0.039	(0.013)**
Constant	-4.510	(0.059)**	-3.927	(0.059)**	-3.773	(0.143)**	-3.905	(0.128)**	-2.825	(0.099)**	-4.442	(0.099)**
Observations	5462		3412		2634		4611		3709		4826	
Men 2001												
Co-ethnic % (log)	0.015	(0.023)	0.025	(0.022)	-0.001	(0.041)	0.149	(0.033)**	0.013	(0.031)	-0.084	(0.054)
Deprivation	0.044	(0.007)**	0.020	(0.006)**	0.039	(0.008)**	0.031	(0.009)**	0.064	(0.008)**	0.048	(0.008)**
Interaction	0.003	(0.004)	0.000	(0.003)	0.007	(0.004)	-0.018	(0.005)**	-0.018	(0.004)**	0.015	(0.010)
Constant	-3.317	(0.031)**	-2.618	(0.032)**	-2.684	(0.055)**	-2.667	(0.043)**	-2.774	(0.047)**	-3.408	(0.062)**
Observations	5654		3725		2843		4399		3813		5025	
Women 1991												
Co-ethnic % (log)	-0.011	(0.007)	0.099	(0.006)**	n/a		-0.102	(0.011)**	-0.033	(0.013)*	-0.033	(0.014)*
Deprivation	0.021	(0.002)**	0.003	(0.002)			0.048	(0.003)**	0.019	(0.004)**	0.011	(0.003)**
Interaction	0.009	(0.002)**	-0.002	(0.001)**			0.006	(0.002)**	-0.002	(0.002)	0.010	(0.003)**
Constant	-1.434	(0.009)**	-0.703	(0.009)**			-2.073	(0.016)**	-1.625	(0.023)**	-1.415	(0.019)**
Observations	5332		3057		2266		4470		3595		5239	
Women 2001												
Co-ethnic % (log)	-0.014	(0.009)	0.104	(0.006)**	0.083	(0.008)**	-0.069	(0.015)**	0.010	(0.017)	-0.058	(0.021)**
Deprivation	0.022	(0.003)**	0.000	(0.002)	0.004	(0.002)*	0.025	(0.004)**	0.037	(0.004)**	0.010	(0.003)**
Interaction	0.009	(0.002)**	0.000	(0.001)	-0.003	(0.001)**	0.007	(0.002)**	-0.005	(0.002)*	0.011	(0.004)**
Constant	-1.699	(0.011)**	-0.872	(0.009)**	-0.637	(0.012)**	-2.078	(0.018)**	-1.803	(0.021)**	-1.729	(0.023)**
Observations	5528		3419		2538		4137		3718		5342	

Robust standard errors in parentheses

* p<=0.05; ** p<=0.01

Source: created by the author using 1991 and 2001 census data

Summary of Study 3

The focus of Study 3 was to explore inequalities in economic activity and inactivity within ethnic minority groups at the neighbourhood scale (e.g. the effect of neighbourhood deprivation on unemployment among Indian men). Significant inequalities were found, with deprivation often being associated with higher rates of unemployment and inactivity *for other reasons*, and lower total employment and self employment rates. Co-ethnic concentration was often associated with higher unemployment, after controlling for deprivation.

Furthermore, co-ethnic concentration was associated with lower total employment and self employment for some ethnic minority groups. This evidence supports segregation theories which suggest negative influences of living among high concentrations of the same ethnic group. In comparison, there were also sometimes when high co-ethnic concentration was associated with higher levels of total employment (e.g. Black Caribbean women) and self employment (e.g. Black African men). Additionally, positive and negative associations were found between economic inactivity *for other reasons* and co-ethnic concentration, depending upon the ethnic group and gender.

Since there were positive as well as negative influences of co-ethnic concentration suggests that the evidence is not all in favour of segregation theories, but also supports ethnic enclave theory too. Ethnic enclave theory is also supported by the interaction results. The effect of deprivation on each dependent variable was often reduced by the level of co-ethnic concentration within a neighbourhood. For example, lower unemployment rates were found in deprived neighbourhoods with higher levels of co-ethnic concentration for many ethnic groups. Therefore, the mixture of evidence makes it difficult to support one set of hypotheses over another, with results varying by dependent variable, ethnic group, gender, and even census year.

4.5 Discussion

4.5.1 Main findings

Studies 1 and 2 of this chapter found significant ethnic inequalities in economic activity and inactivity, with regional variation and also evidence on consistency in ethnic inequalities through time. There was also evidence on considerable change through time. Ethnic inequalities were often narrowed due to decreases in unemployment among all ethnic minority groups. Changes through time were also found regionally. For example, self-employment rates among Bangladeshi women varied regionally in 1991, but this regional variation disappeared by 2001. Gender was an important factor, with statistically significant differences in many dependent variables within the same ethnic group. For example, the high rates of economic inactivity *for other reasons* among women, but the very low rates among men.

These results might suggest the conclusion that regional geography matters for ethnic inequalities in economic activity and inactivity. It could be that the regional variation of ethnic inequalities is reflecting differences in access to labour markets. In particular, the use of London as the region reference category often appears to suggest that there is some form of 'London-effect' on the chances for labour market achievement, in comparison to other regions. This would be an inappropriate conclusion because there are many possible explanations that could lead to the regional patterning of ethnic inequalities in the labour market. I now outline some of these hypotheses.

One hypothesis could be that living in London offers residents access to a larger labour market than in other regions. However, the higher employment rates in London may also be explained by the higher costs of London life. For example, some Londoners are forced into the labour

market to improve household incomes, while people living in less expensive regions might choose to take care of the home full-time instead of finding employment. It could be said that this explanation is convincing for women in part-time occupations, but perhaps less so for men.

Another potential explanation might be that since a large proportion of all ethnic minority groups in England live in London, there may be more chances to work for co-ethnic employers than in other regions. This could be a "London-effect", with more chances for employment for ethnic minorities compared to other regions. This is likely to lead to people migrating from other regions to London seeking jobs. This suggests that migration to London (and elsewhere) is highly selective, and this is supported by the literature (Dixon, 2003). It is possible that those people who do move to London are already in relatively more affluent socioeconomic positions. Most may have even already secured an employment contract before the move, rather than moving in search of a job (Savage, 1988). At least some of the geographical variation in labour market outcomes may be related to selective migration of people and not an actual regional effect.

Study 3 extended my research towards the neighbourhood scale, represented by wards. The main aim of this study was to explore statistical association between measures of neighbourhood characteristics, deprivation and co-ethnic concentration, and each of the dependent variables. Several hypotheses that were posited in the Literature Review chapter, grouped broadly into the segregation theories (suggesting negative influences of co-ethnic concentration) and ethnic enclave and protected market theories (implying positive influences). The main findings from this study suggested that deprivation was often negative to employment. Co-ethnic concentration was often also negative for employment and positive for unemployment, independent of deprivation. However, interaction between deprivation and co-ethnic concentration was often different. Co-ethnic concentration seemed to improve employment and reduce unemployment in deprived neighbourhoods.

These results suggest that there is unlikely to be a straightforward relationship between economic activity/inactivity and co-ethnic concentration. The association depended often on the ethnic group and also on gender. Many ethnic groups experienced lower unemployment rates in more deprived areas that had a greater level of co-ethnic concentration, though not significantly for Chinese, Pakistani and Indian groups and Black Caribbean women. This is supportive evidence for the ethnic enclave and protected market hypotheses, but not the ethnic segregation hypotheses (as were discussed in the Literature Review). In comparison, there was much more heterogeneity among results for total employment and economic inactivity *for other reasons*.

These mixed results do lead to at least one clear conclusion. Policymakers should not regard that geographical concentrations of ethnic (often minority) groups are always a negative thing, because some positive findings were shown in this chapter. These positive findings are supported by discussion in previous papers which suggested that in ethnic (minority) concentrated neighbourhoods there is likely to be stronger social networks and support, a greater demand for niche enterprise, less discrimination and more opportunities for employment (Peach, 1996b, Cutler and Glaeser, 1997, Zhou, 1998, 2005, Portes, 1998, Portes and Manning, 2005).

4.5.2 Strengths and weaknesses

In study 2, I am able to conclude that there is regional variation of ethnic inequalities in economic status. Although there appeared to be some change in regional variation over time, it is difficult to be certain that such patterns are the result of regional effects and not other factors, such as migration to the south-east of England as highlighted in previous studies (Fielding, 1992). The results of study 3 are more difficult to identify a trend over time, since the ward boundaries were

not consistent through time. Despite the fact that I have used the largest dataset available in England with information on dependent variables by ethnic group and gender.

There are some limitations that need to be highlighted. First, as ward boundaries in England change over time, it is difficult to know whether the changes found between 1991 and 2001 were real, or the result of these boundary changes. Second, the limitations of assuming wards are good identifiers of neighbourhoods that were discussed in the Data and Method chapter also apply here. Another limitation of this chapter was the lack of control variables. Education is a key factor in the labour market (Platt, 2007, Breen and Jonsson, 2005) as discussed in previous chapters. Other factors, such as age, language skills, household structure (e.g. presence of children within the household), and social and human capital passed on from parents can potentially influence the chances of a person becoming socially mobile (Platt, 2005c, Heath et al., 2000a, Breen and Goldthorpe, 2001). This information was not available within the available census data. This limitation (omitted variable bias) will be addressed with detailed individual-level longitudinal data in later chapters.

In addition to use the largest available dataset, there are other strengths of this chapter. I have harmonised Government Office Regions (GORs) and Standard Statistical Regions (SSRs). This allows a more reliable comparison of geographical variation over time. Other strength of this chapter was the consideration of self employment in addition to total employment, and the investigation of economic inactivity *due to other reasons*. Study 1 illustrated the importance of these above dependent variables and the significant ethnic and gender inequalities that existed in 1991 and 2001. As ethnic enclave theory suggests that living in co-ethnically concentrated neighbourhoods may increase opportunities for niche enterprise, the consideration of self employment was important in this regard.

4.6 Conclusion

This chapter has presented findings from cross-sectional analyses and showed that ethnic inequalities in economic activity and inactivity existed in 1991 and 2001, varied regionally, by gender, and through time. There was also some evidence of inequalities within ethnic groups at the neighbourhood scale. In conclusion, the evidence from previous studies and the cross-sectional, ecological study design of this chapter needs to be enhanced with multilevel longitudinal data and a greater range of dependent variables for a more detailed exploration of ethnic inequalities through time. I attempt to fill these gaps in chapters 5-8.

5. Are ethnic inequalities in intragenerational transitions in economic status linked to neighbourhood deprivation and diversity?

5.1 Introduction

This chapter investigates ethnic inequalities, regional inequalities and neighbourhood effects on social mobility between 1991 and 2001.

Studies have showed that ethnic inequalities in social mobility persist after taking into account individual and household characteristics (Heath and McMahon, 2005, Modood et al., 1997, Heath et al., 2000b, 2008a, Heath and Smith, 2003, Heath and Cheung, 2007, Li and Heath, 2008, Platt, 2005, 2007). The unexplained ethnic inequalities have been referred to as 'ethnic penalties' (Carmichael and Woods, 2000). However, as outlined in the Introduction and Literature Review, it may be that these ethnic penalties are actually the result of neighbourhood characteristics like deprivation and ethnic diversity.

Deprivation is theorised to reduce job-related opportunities, expose residents to less-favourable social norms, and negatively stereotype entire communities (Wilson, 1987, Galster, 2007b, Atkinson and Kintrea, 2001b). Therefore, as ethnic minorities in England are over-represented in deprived neighbourhoods (Simpson et al., 2009), it may be that deprivation explains the ethnic inequalities in social mobility.

The ethnic diversity of neighbourhoods may also play a role in ethnic inequalities in social mobility. Competing hypotheses were discussed in the Literature Review. According to Blumer and others, the residential mixing of ethnic groups in neighbourhoods increases competition for local resources (e.g. jobs) and raises the risk of experiencing discrimination (Blumer, 1958, Bobo and Hutchings, 1996). Discrimination in more ethnically diverse neighbourhoods may result in fewer opportunities for finding employment and a greater risk of losing a job. According to Putnam, ethnic diversity not only increases the risk of discrimination, but reduces all forms of social capital (Putnam, 2007). The breaking down of informal networks within and between ethnic groups in ethnically diverse neighbourhoods could prevent the flow of information on job opportunities, making it more difficult to find employment.

In comparison, Allport hypothesised that ethnic diversity would have a positive effect on inter-group relations. This was because more contact increases understanding and reduces prejudice between groups (Allport, 1954, Pettigrew, 1998). Furthermore, as discussed in the Data and Method chapter, the most ethnic minority concentrated neighbourhoods in England are also the most ethnically diverse (Simpson and Finney, 2009). A greater proportion of ethnic minorities within a neighbourhood may increase local social capital within ethnic groups (Zhou, 2005, Borjas, 1992, 1994, 1995, Portes, 1998), raise demand for niche enterprise, and provide more job opportunities for ethnic minority people who lack qualifications or language fluency (Aldrich and Waldinger, 1990, Portes and Manning, 2005, Wilson and Portes, 1980). In other words, ethnic diversity may improve prospects in the labour market among ethnic minorities.

Social mobility is defined in this chapter as transitions from one type of economic activity and inactivity to another during ten years of an individual's lifecourse. I address the following questions:

1) Are ethnic minorities more likely to become unemployed than the White ethnic group?

2) Are ethnic minorities less likely to become employed than the White ethnic group?
3) Are ethnic minority women more likely to become economically inactive for homemaking reasons than White women?
4) Is neighbourhood deprivation positively associated with the likelihood of becoming unemployed?
5) Is neighbourhood deprivation negatively associated with the likelihood of becoming employed?
6) What is the nature of the relationship between transitions in economic activity/inactivity and neighbourhood ethnic diversity?
7) To what extent are any of the ethnic inequalities in social mobility explained by effects of neighbourhood deprivation and ethnic diversity?
8) Are there regional inequalities in social mobility, independent of individual and neighbourhood characteristics?

5.2 Data

5.2.1 Sample

In this chapter, I use an extract of the ONS LS data sample which was outlined earlier in the Data and Method chapter. This sample comprised ONS LS members who appeared in England in 1991 and 2001, lived in urban wards in 1991, and were aged 18-49 for women and 18-54 for men in 1991. The extract for this chapter concerns all men who were either employed or unemployed in 1991, and all women who were employed, unemployed, or economically inactive for homemaking reasons in 1991.

5.2.2 Dependent and independent variables

The dependent variables I focus on in this chapter are as follows:

Men:

1. Employment to unemployment
2. Unemployment to employment

Women:

1. Employment to unemployment
2. Employment to homemaking
3. Unemployment to employment
4. Unemployment to homemaking
5. Homemaking to employment
6. Homemaking to unemployment

I explore their level of association with several independent variables, all of which were defined in the Data and Method chapter:

> *Individual-level:* age group; change in educational qualifications (1991-2001); change in couple status (1991-2001); migrant generation status (born in UK/overseas); internal migration within the UK; household tenure
>
> *Neighbourhood-level:* Townsend deprivation; ethnic diversity (non-White concentration (indirect measure) and the Herfindahl index (direct measure)), all calculated for 1991 electoral wards

Region: 'Standard Region' of residence in 1991

5.3 Analysis

5.3.1 Descriptive statistics

Table 5-1 shows the percentage of men and women who were socially mobile and immobile between 1991 and 2001 for each dependent variable based upon transitions in economic activity/inactivity. Percentages were calculated by dividing the total number of persons who were socially mobile (e.g. the number of employed men who became unemployed) by the total number of persons (all employed men). Among men who were employed in 1991, only 3% of men became unemployed by 2001. In comparison, of women who were employed in 1991, 1.8% were unemployed by 2001, whereas 10.6% had become homemakers. For men and women who were unemployed in 1991, 82.7% and 66.1% respectively found employment by 2001. For unemployed women in 1991, 26.4% alternatively became homemakers by 2001. Among homemaking women in 1991, more than half were employed by 2001. 37.9% remained in a homemaking role. 4.2% had become unemployed.

Table 5.1: Intragenerational transitions in economic activity between 1991 and 2001

		Men		Women	
		N	%	N	%
Employment to	**employed**	71,030	97.0	50,379	87.5
	unemployed	2,185	3.0	1,043	1.8
	homemaker	n/a		6,127	10.6
	Total	73,215		57,549	
Unemployment to	**unemployed**	1,030	17.3	262	7.5
	employed	4,926	82.7	2,316	66.1

	homemaker	n/a		927	26.4
	Total	5,956		3,505	
Homemaker to	**homemaker**	131	34.1	7,188	37.9
	employed	209	54.4	10,979	57.9
	unemployed	44	11.5	797	4.2
	Total	384		18,964	

Source: ONS LS, created by the Author

5.3.2 Modelling strategy

As some of the dependent variables were binary coded (those for men), but others were multinomial (those for women), different statistical models would be required. For men, a binary logit regression model was used, as these are appropriate to test the likelihood of an event occurring versus it not occurring with Odds Ratios (exponentiated logit coefficients). In my models, I code any man who experienced social mobility (e.g. employed in 1991, became unemployed by 2001) to 1. Those men who remained in the same economic activity in 2001 as they were in at 1991 were coded 0.

For women, a multinomial logit regression model was used, as this type of model is useful for exploring the likelihood of an event occurring versus it not occuring, while considering that other events are also possible. For example, a multinomial logit model is able to estimate the likelihood that a woman employed in 1991 was to become unemployed by 2001, controlling for the other alternative that she might have become a homemaker. Relative risk ratios are used to explain this likelihood and can be interpreted in the same was as an odds ratio. Women, who remained in the same economic status in 2001 as they were in 1991, were fitted as the base category in each dependent variable. All models, for men and women, used the Huber White sandwich estimator to adjust for the clustering of individuals within wards (UCLA: Academic

Technology Services SCG, 2009). A full discussion of the problem of clustering within data and how to address it was presented in the Data and Method chapter.

5.4 Results

5.4.1 Study 1: Employment to unemployment among men

Table 5-2 shows the percentage social mobility and immobility, defined by transitions from employment to unemployment, by each independent variable. The 'Total' column indicates the total number of employed men in the 1991 sample, with the % column identifying the percentage of those men who experienced social mobility (transition to unemployment) between 1991 and 2001. Odds Ratios indicate the statistical likelihood that an employed man in 1991 would become unemployed by 2001, compared to the likelihood of remaining employed. Odds Ratios are derived from univariate binary logit regression models that were adjusted for the clustering of individuals within wards. 95% confidence intervals indicate the reliability of the Odds Ratios and p-values suggest the level of significance, with $p<0.05$ considered statistically significant and highlighted in bold.

Compared to an unemployment rate at 2.79% for White men, most other ethnic groups showed significantly higher unemployment rates (apart from Chinese men). This was especially for Bangladeshi men at 12.57%, who were 4.97 times more likely to become unemployed than White men. Men aged 40-54 were 1.31 times more likely to become unemployed (3.52%) than those aged 18-29 (2.72%). 2.36% of men who were in a couple in 1991 and 2001 became unemployed. In comparison, men who were single (4.83%) or became single (4.62%) were almost twice as likely to become unemployed. On the other hand, men who were single in 1991, but in a couple

by 2001, were significantly less likely to become unemployed (1.73%) than those who were in a couple.

4.74% of men who had no qualifications in 1991 or 2001 became unemployed. In comparison, men who had qualifications through both years (1.85%) and those who gained qualifications by 2001 (2.72%) were less likely to become unemployed. Men who rented privately (4.09%) or rented socially (6.43%) were 1.69 and 2.74 times more likely to become unemployed compared to an unemployment rate of 2.48% among homeowners. 4.78% of men born overseas became unemployed by 2001, which was 1.7 times more than the 2.83% unemployment rate of those born in the UK. The risk of becoming unemployed did not appear to depend significantly upon whether a man moved within England (2.91%) or not (3.06%) (note that I did not consider any person who moved into, or out of England between 1991 and 2001). Men in the most deprived neighbourhoods were 2.27 times more likely to become unemployed (4.44%) compared to those in more affluent areas (2%).

Compared to men living in more ethnically diverse neighbourhoods (3.7%), men in less diverse areas were less likely to become unemployed (2.65%). Men in more non-White concentrated neighbourhoods were 1.41 times more likely to become unemployed (3.7%) than men in more White concentrated areas (2.65%). Compared to men living in the South East (2.71%), those in the North (3.96%), Yorkshire (3.22%) and the West Midlands (3.88%) were all more likely to become unemployed. Men in the South West were less likely to become unemployed (2.13%).

Table 5.2: Social mobility among men between 1991 and 2001, defined by transitions in economic activity: the likelihood of employed men in 1991 becoming unemployed by 2001

Men: Employed to	Total	% Unemployed	OR	95 % CI		p
Ethnic Group						
White	69005	2.79	ref			
Indian	1777	4.78	**1.72**	**1.37**	**2.16**	**<0.001**

Pakistani	614	8.96	**3.45**	**2.57**	**4.64**	**<0.001**
Bangladeshi	175	12.57	**4.97**	**2.98**	**8.28**	**<0.001**
Black Caribbean	520	7.50	**2.69**	**1.92**	**3.75**	**<0.001**
Black African	163	6.13	**2.30**	**1.22**	**4.36**	**0.010**
Chinese	223	3.14	1.14	0.54	2.43	0.728
Other	738	5.28	**1.96**	**1.42**	**2.71**	**<0.001**
Total	73215	2.98				
Age Group						
18 to 29	24325	2.72	ref			
30 to 39	23244	2.67	0.99	0.88	1.10	0.817
40 to 54	25646	3.52	**1.31**	**1.18**	**1.45**	**<0.001**
Total	73215	2.98				
Couple Status						
Couple: 1991 & 2001	40873	2.36	ref			
Single: 1991 & 2001	16098	4.83	**2.10**	**1.91**	**2.32**	**<0.001**
Couple: 1991; Single: 2001	5567	4.62	**2.03**	**1.76**	**2.34**	**<0.001**
Single: 1991; Couple: 2001	10677	1.73	**0.75**	**0.64**	**0.88**	**<0.001**
Total	73215	2.98				
Qualifications						
None at all	15972	4.74	ref			
Qualifications: 1991 & 2001	14611	1.85	**0.38**	**0.33**	**0.44**	**<0.001**
None: 1991; Gained: 2001	42585	2.72	**0.56**	**0.51**	**0.62**	**<0.001**
Total	73214	2.98				
Household Tenure						
Owner	61591	2.48	ref			
Private renter	3717	4.09	**1.69**	**1.43**	**2.00**	**<0.001**
Social renter	7620	6.43	**2.74**	**2.47**	**3.05**	**<0.001**
Total	73215	2.98				
Migrant Generation						
Born in the UK	67272	2.83	ref			
Born overseas	5943	4.78	**1.70**	**1.49**	**1.95**	**<0.001**
Total	73215	2.98				
Internal Migrant						
Non-mover	33848	3.06	ref			
Mover	39337	2.91	0.95	0.88	1.04	0.278
Total	73215	2.98				

Deprivation						
Low	26469	2.00	ref			
Moderate	24731	2.80	**1.41**	**1.26**	**1.58**	**<0.001**
High	20935	4.44	**2.27**	**2.04**	**2.54**	**<0.001**
Total	73215	2.98				
Ethnic diversity						
High	22914	3.70	ref			
Moderate	24800	2.65	**0.71**	**0.64**	**0.79**	**<0.001**
Low	24421	2.65	**0.71**	**0.64**	**0.79**	**<0.001**
Total	73215	2.98				
% Non-White						
Low	24436	2.65	ref			
Moderate	24803	2.65	1.00	0.89	1.11	0.984
High	22896	3.70	**1.41**	**1.27**	**1.57**	**<0.001**
Total	73215	2.98				
Standard region						
North	4293	3.96	**1.50**	**1.27**	**1.77**	**<0.001**
Yorkshire	7432	3.22	**1.19**	**1.02**	**1.39**	**0.027**
East Midlands	6580	2.99	1.12	0.95	1.33	0.166
East Anglia	3098	2.55	0.95	0.75	1.21	0.697
South East	27642	2.71	ref			
South West	6755	2.13	**0.78**	**0.65**	**0.94**	**0.007**
West Midlands	8370	3.88	**1.46**	**1.26**	**1.68**	**<0.001**
North West	9039	3.13	1.16	1.00	1.34	0.051
Total	73216	2.98				

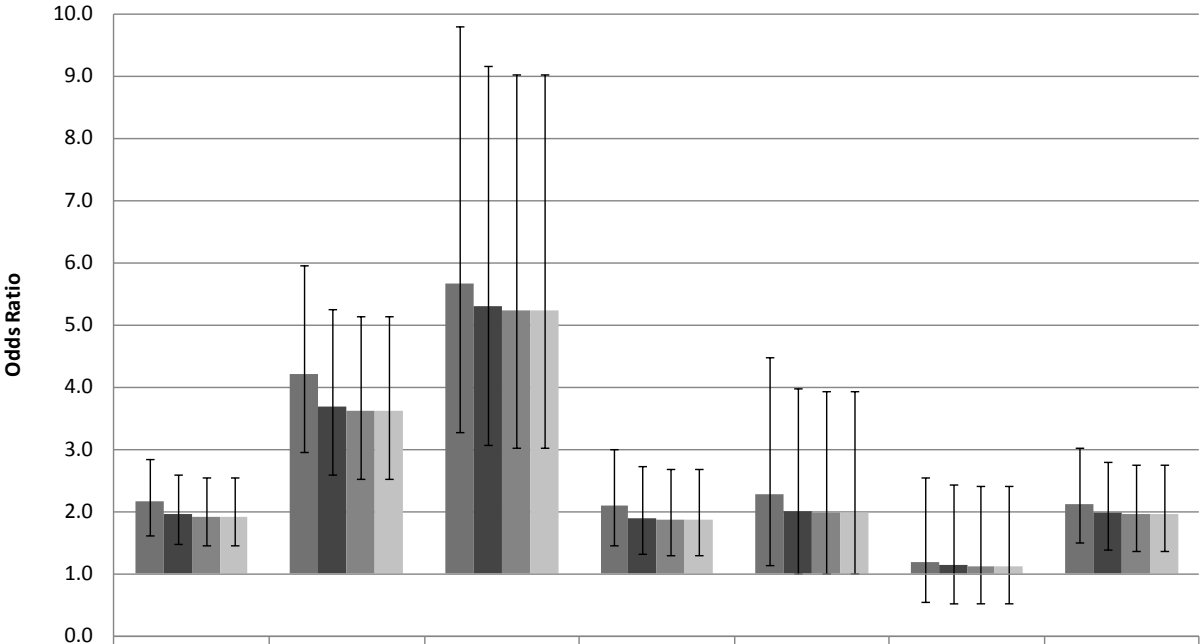
Source: ONS LS, created by the Author

Figure 5-1 shows ethnic inequalities in the likelihood of employed men in 1991 becoming unemployed by 2001, adjusting for individual factors, region of residence, and neighbourhood characteristics at different stages of the modelling process. Figure 5-1 shows that all ethnic minority men, except for the Chinese, were significantly more likely to become unemployed than White men, after controlling for individual characteristics and the region within which they lived (Model 1). Some reduction of the ethnic inequalities was observed after controlling for deprivation (Model 2), which in particular, resulted in the disadvantage among Black African men relative to White men becoming not statistically significant. However, the greater likelihood

of becoming unemployed among Indian, Black Caribbean, and especially Pakistani and Bangladeshi men persisted after controlling for deprivation, and for the measures of non-White concentration and ethnic diversity. Therefore, this evidence suggests that all ethnic minority men in England were more likely to become unemployed than White men, regardless of other important individual factors and where they lived in 1991.

Figure 5-2 shows geographical variation in the likelihood of employed men becoming unemployed by 2001. Regions with thick boundaries indicate a percentage that is significantly different to the South East ($p<0.05$). Significance levels are calculated from binary logit regression, adjusting for individual factors, deprivation and non-White concentration. A clear north-south gradient was observed. Employed men were more likely to become unemployed in the north, compared to men living in the South East. Figure 5-2 clearly shows that men in the north were particularly disadvantaged. In comparison, unemployment rates among men living in the South West and East Anglia were lower than in the South East, though not significantly different.

Figure 5-1: Ethnic inequalities in the likelihood of employed men in 1991 becoming unemployed by 2001 (Source: created by the author using the ONS LS)



	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Chinese	Other
Model 1	2.156	4.201	5.672	2.104	2.273	1.194	2.133
Model 2	1.962	3.700	5.306	1.905	2.016	1.137	1.975
Model 3	1.926	3.612	5.225	1.870	1.993	1.130	1.952
Model 4	1.927	3.614	5.227	1.871	1.993	1.130	1.953

1. Odds Ratios and 95 % confidence intervals for each ethnic group compared to the White group. 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).
2. Models were adjusted as follows:

   Model 1: all individual characteristics, plus region of residence

   Model 2: as Model 1, plus the Townsend deprivation index for CAS wards

   Model 3: as Model 2, plus the percent non-White concentration for CAS wards

   Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 5-2: The likelihood of employed men in 1991 becoming unemployed by 2001, by 1991 Standard Regions (Source: created by the author using the ONS LS)

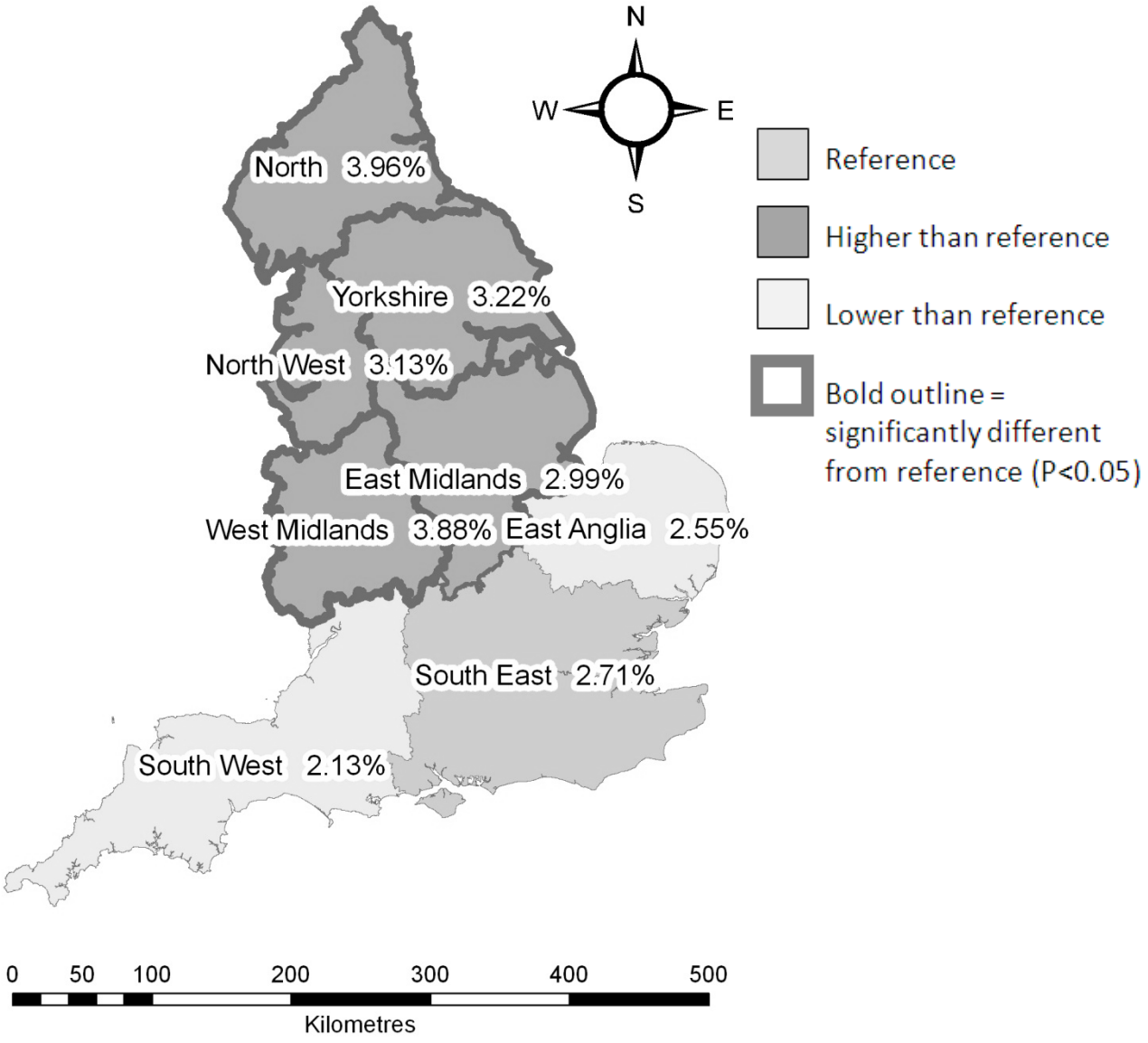
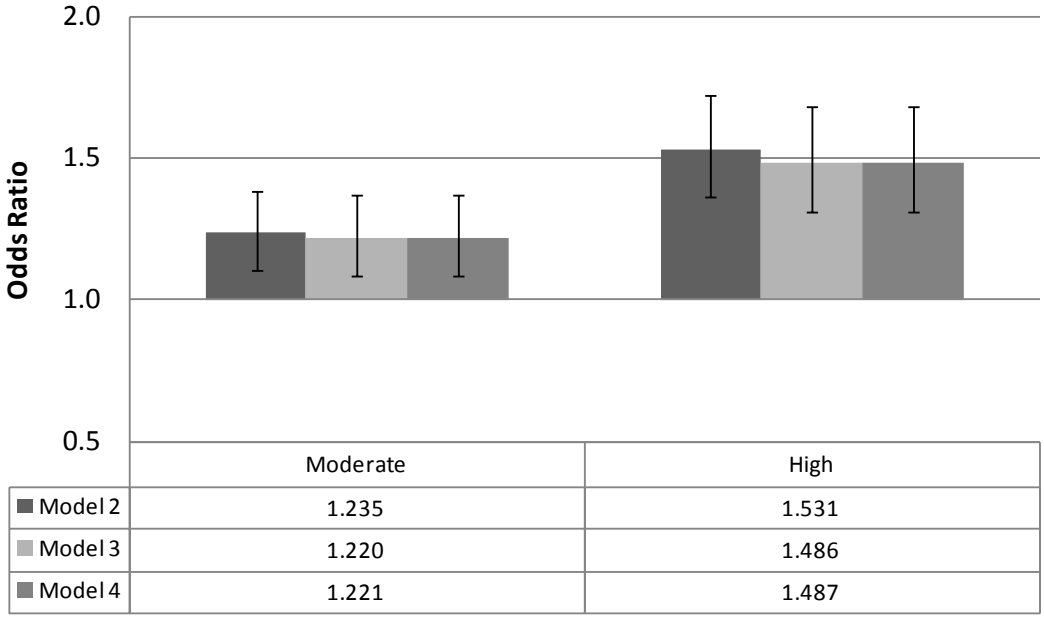


Figure 5-3 shows the effect of deprivation on the likelihood of employed men in 1991 becoming unemployed by 2001, controlling for individual factors, region of residence, and measures of neighbourhood ethnic diversity at different stages of the modelling process. Deprivation was significantly positively associated with the likelihood of becoming unemployed for men, independent of individual factors and geographical region. The deprivation effect was consistent and not explained by other neighbourhood characteristics.

Figure 5-3: Effect of deprivation on the likelihood of employed men in 1991 becoming unemployed by 2001 (Source: created by the author using the ONS LS)



	Moderate	High
Model 2	1.235	1.531
Model 3	1.220	1.486
Model 4	1.221	1.487

1. Odds Ratios and 95 % confidence intervals for tertiles 2 (moderately deprived) and 3 (highly deprived) compared to the tertile 1 (affluent). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).
2. Models were adjusted as follows:

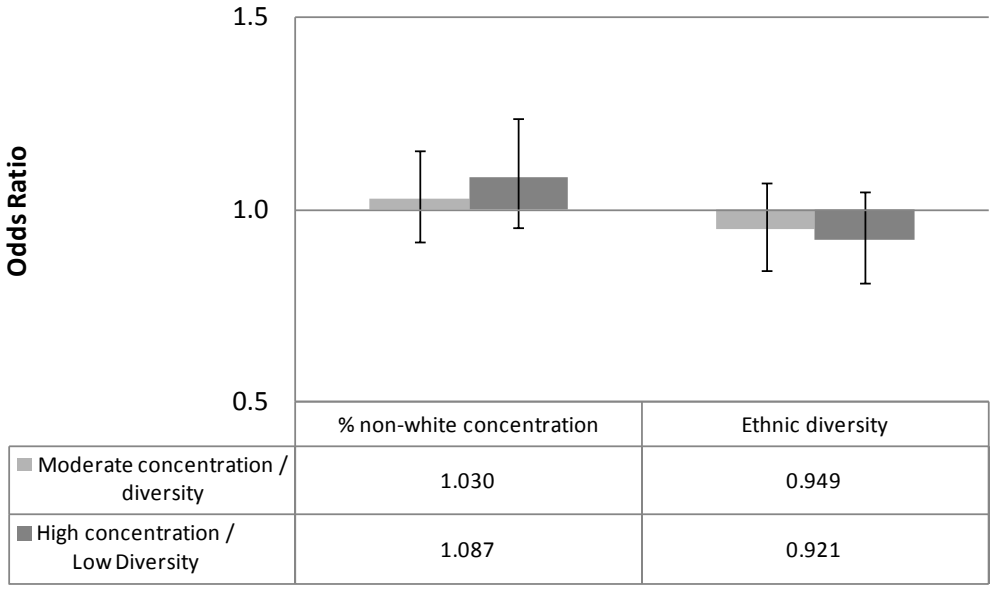
   Model 2: all individual characteristics, region of residence, plus the Townsend deprivation index for CAS wards

   Model 3: as Model 2, plus the percent non-White concentration for CAS wards

   Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 5-4 shows the effect of neighbourhood ethnic diversity on the likelihood of employed men in 1991 becoming unemployed by 2001. Men in more non-White concentrated neighbourhoods were more likely to become unemployed. Those in the least ethnically diverse neighbourhoods were less likely to become unemployed than men in the most diverse areas. However, these associations were not statistically significant to $p<0.05$, as demonstrated by the 95% confidence intervals which fall either side of 1.

Figure 5-4: The effect of non-White concentration and ethnic diversity on the likelihood of employed men in 1991 becoming unemployed by 2001 (Source: created by the author using the ONS LS)



	% non-white concentration	Ethnic diversity
Moderate concentration / diversity	1.030	0.949
High concentration / Low Diversity	1.087	0.921

1. Odds Ratios and 95 % confidence intervals for tertiles 2 (moderately non-White concentrated or moderately diverse) and 3 (highly non-White concentrated or least diverse) compared to the tertile 1 (least non-White concentrated or most ethnically diverse). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Summary of Study 1

Study 1 has showed that there were significant ethnic inequalities in the likelihood of men becoming unemployed between 1991 and 2001. Indian, Black Caribbean, and especially Pakistani and Bangladeshi were particularly at risk. Individual factors, though important, did not fully explain the disadvantage faced by ethnic minority men in the English labour market. Neither did the regions nor neighbourhoods in which they lived. Significant regional variation in the risk of becoming unemployed was found, reflecting a north-south gradient. Men in the north were particularly likely to become unemployed compared to those in the southern regions.

Neighbourhood deprivation was significantly associated with the risk of becoming unemployed, but the measures of non-White concentration and ethnic diversity had no significant effect.

5.4.2 Study 2: Unemployment to employment among men

Table 5-3 shows the relationship between the likelihood of unemployed men in 1991 becoming employed by 2001, with each independent variable. The 'Total' column indicates the total number of unemployed men in the 1991 sample, with the % column identifying the percentage of those men who experienced social mobility (transition to employment) between 1991 and 2001. Odds Ratios indicate the statistical likelihood that an unemployed man in 1991 will become employed by 2001, compared to likelihood of remaining unemployed. Odds Ratios are derived from univariate binary logistic regression models, adjusting for the clustering of individuals within wards. 95% confidence intervals indicate the reliability of the Odds Ratios and p-values suggest the level of significance, with $p<0.05$ considered statistically significant and highlighted in bold.

The likelihood of unemployed men becoming employed by 2001 did not appear to vary significantly by ethnic group. Men aged 40-54 were less likely to be employed (79.51%), comparing to those aged 18-29 (84.12%). 88.64% of unemployed in a couple in 1991 and 2001 became employed. In comparison, men who were single (75.5%) or became single (80.43%) were less likely to get a job by 2001. On the other hand, men who became part of a couple by 2001 were 1.42 times more likely to become employed (91.82%) than those who were in a couple throughout. 75.72% of unemployed men who had no qualifications became employed. However, those with qualifications throughout were 2.92 times more likely (90.13%), and those who gained

qualifications were 1.88 times more likely (85.55%) to become employed than those with no qualifications. 87.61% of home owning men became employed by 2001. In comparison, those who rented privately (77.61%), or socially (76.38%), were significantly less likely to become employed.

The likelihood of unemployed men in 1991 becoming employed by 2001 did not vary according to whether a man was born in the UK or overseas. Men who moved within the UK were 1.49 times more likely to become employed (84.9%) than those who did not move (79.07%). Men living in more deprived neighbourhoods were significantly less likely to find employment by 2001 (77.63%) compared to those in more affluent areas (89.78%). Compared to men living in highly diverse neighbourhoods (80.94%), those in the least diverse neighbourhoods were not significantly more likely to find employment by 2001 (83.21%). However, those in moderately diverse neighbourhoods were 1.26 times more likely to become employed (84.25%) compared to those in highly diverse areas. 86.11% of unemployed men in the South East in 1991 became employed by 2001. Only men in the South West were significantly more likely to find employment (90.47%). In comparison, unemployed men in every other region of England, but especially the North (76.05%) were less likely to find employment compared to those in the South East.

Table 5.3: Univariate associations between the likelihood of unemployed men in 1991 becoming employed by 2001, for each independent variable

Men: Unemployed to	Total	% Employed	OR	95 % CI		p
Ethnic Group						
White	5331	82.84	ref			
Indian	158	82.91	1.06	0.68	1.66	0.787
Pakistani	151	78.15	0.74	0.50	1.11	0.143
Bangladeshi	36	BLANKED	0.83	0.38	1.81	0.642
Black Caribbean	96	83.33	1.03	0.58	1.81	0.931
Black African	47	76.60	0.66	0.36	1.23	0.191

Chinese	13	BLANKED	0.47	0.14	1.52	0.207
Other	124	86.29	1.26	0.76	2.10	0.377
Total	5956	82.71				
Age Group						
18 to 29	3118	84.12	ref			
30 to 39	1564	82.48	0.89	0.76	1.05	0.162
40 to 54	1274	79.51	**0.72**	**0.61**	**0.86**	**<0.001**
Total	5956	82.71				
Couple Status						
Couple: 1991 & 2001	1910	88.64	ref			
Single: 1991 & 2001	2661	75.50	**0.39**	**0.33**	**0.47**	**<0.001**
Couple: 1991; Single: 2001	419	80.43	**0.54**	**0.40**	**0.71**	**<0.001**
Single: 1991; Couple: 2001	966	91.82	**1.42**	**1.08**	**1.86**	**0.011**
Total	5956	82.71				
Qualifications						
None at all	1936	75.72	ref			
Qualifications: 1991 & 2001	446	90.13	**2.92**	**2.11**	**4.04**	**<0.001**
None: 1991; Gained: 2001	3571	85.55	**1.88**	**1.63**	**2.16**	**<0.001**
Total	5956	82.71				
Household Tenure						
Owner	3301	87.61	ref			
Private renter	594	77.61	**0.49**	**0.40**	**0.62**	**<0.001**
Social renter	2015	76.38	**0.46**	**0.40**	**0.54**	**<0.001**
Total	5956	82.71				
Migrant Generation						
Born in the UK	5336	82.95	ref			
Born overseas	620	80.65	0.85	0.69	1.05	0.130
Total	5956	82.71				
Internal Migrant						
Non-mover	2241	79.07	ref			
Mover	3709	84.90	**1.49**	**1.30**	**1.70**	**<0.001**
Total	5956	82.72				
Deprivation						
Low	1233	89.78	ref			
Moderate	1766	85.90	**0.69**	**0.55**	**0.87**	**0.002**

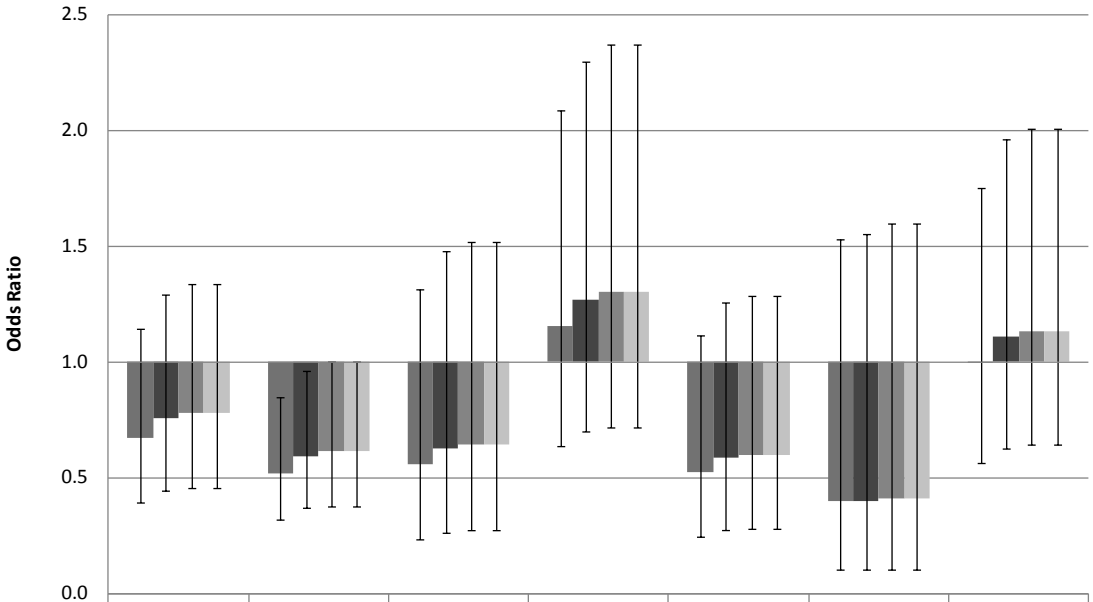
High	2848	77.63	**0.40**	**0.32**	**0.49**	**<0.001**
Total	5956	82.71				
Ethnic diversity						
High	2177	80.94	ref			
Moderate	1848	84.25	**1.26**	**1.06**	**1.50**	**0.008**
Low	1822	83.21	1.17	0.99	1.38	0.070
Total	5956	82.71				
% Non-White						
Low	1821	83.20	ref			
Moderate	1849	84.26	1.08	0.90	1.29	0.392
High	2177	80.94	0.86	0.73	1.01	0.071
Total	5956	82.71				
Standard region						
North	476	76.05	**0.51**	**0.40**	**0.66**	**<0.001**
Yorkshire	701	78.17	**0.58**	**0.46**	**0.73**	**<0.001**
East Midlands	492	82.32	**0.76**	**0.58**	**0.98**	**0.034**
East Anglia	207	87.44	1.09	0.71	1.69	0.693
East Anglia	2052	86.11	ref			
South West	493	90.47	**1.51**	**1.08**	**2.13**	**0.017**
West Midlands	657	78.84	**0.61**	**0.48**	**0.77**	**<0.001**
North West	878	79.61	**0.63**	**0.51**	**0.78**	**<0.001**
Total	5956	82.71				

Source: ONS LS, created by the Author

Figure 5-5 shows unemployed Pakistani men in 1991 were significantly less likely to become employed compared to White men, after controlling for individual characteristics and region. After controlling for deprivation, the significance level was reduced, and after adjusting for the measures of ethnic diversity, the reduced likelihood of Pakistani men becoming employed was almost non-significant. Indian, Bangladeshi and Black African men were also less likely to become employed by 2001. But these ethnic inequalities were not statistically significant before or after accounting for neighbourhood characteristics. On the other hand, Black Caribbean men were more likely to become employed, though again the results were not significant. Chinese

appeared to do the worst of all ethnic minorities. However, these results are less reliable as they are based upon very small numbers (see Table 5-3).

Figure 5-5: Ethnic inequalities in the likelihood of unemployed men in 1991 becoming employed by 2001 (Source: created by the author using the ONS LS)



	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Chinese	Other
Model 1	0.671	0.519	0.557	1.155	0.521	0.397	0.994
Model 2	0.758	0.595	0.625	1.268	0.584	0.399	1.109
Model 3	0.781	0.614	0.642	1.304	0.598	0.411	1.134
Model 4	0.781	0.614	0.642	1.304	0.598	0.411	1.134

1. Odds Ratios and 95 % confidence intervals for each ethnic group compared to the White group. 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).
2. Models were adjusted as follows:

   Model 1: all individual characteristics, plus region of residence

   Model 2: as Model 1, plus the Townsend deprivation index for CAS wards

   Model 3: as Model 2, plus the percent non-White concentration for CAS wards

   Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 5-6 shows regional inequalities in the likelihood of unemployed men becoming employed by 2001. Regions with thick boundaries indicate percentages that were significantly different from the South East ($p<0.05$). Significance levels were calculated from binary logit regression,

adjusting for individual factors, deprivation and non-White concentration. A clear north-south gradient was observed, with regions in the north having significantly lower rates of unemployed men becoming employed compared to the South East. The South West and East Anglia had higher rates than the South East, but these were not statistically significant.

Figure 5-6: The likelihood of unemployed men in 1991 becoming employed by 2001, by 1991 Standard Regions (Source: created by the author using the ONS LS)

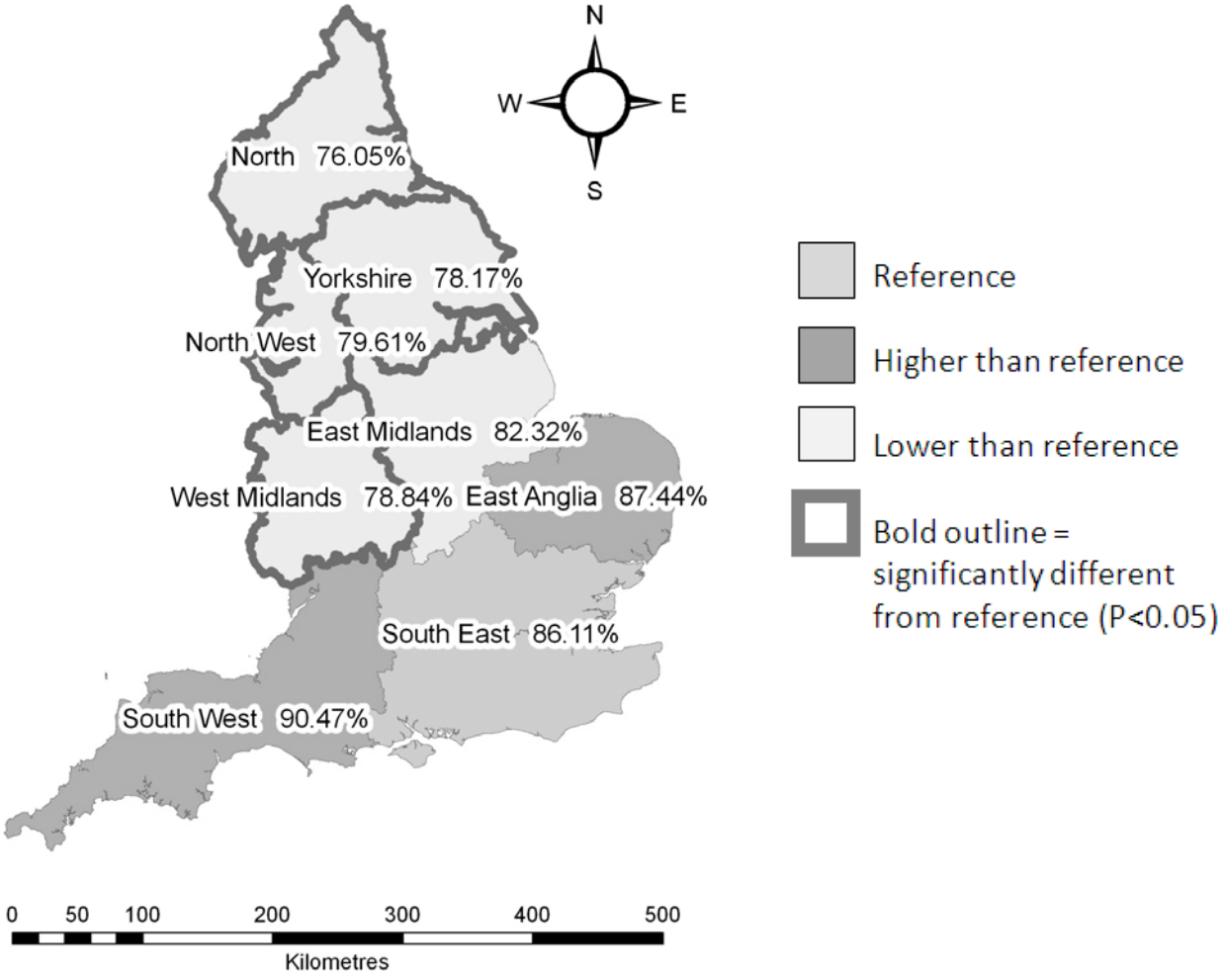
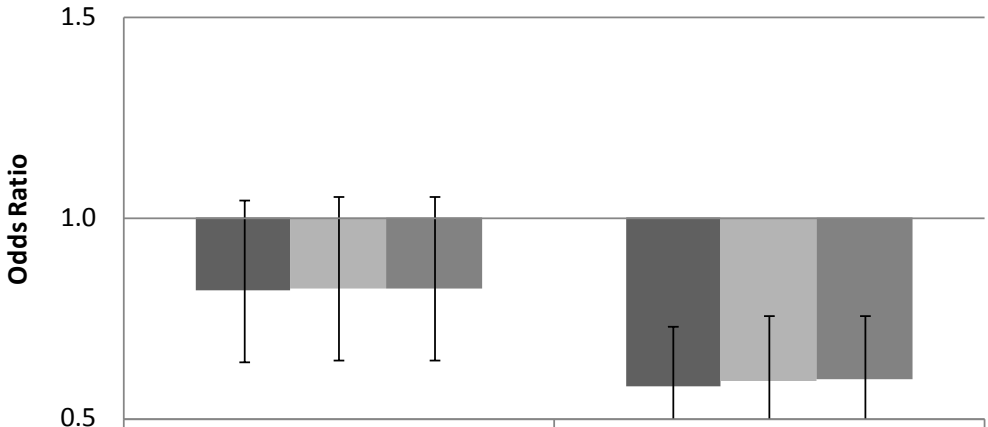


Figure 5-7 shows the effect of deprivation on the chances of unemployed men becoming employed by 2001, after controlling for individual factors and region. Men in more deprived

neighbourhoods were significantly less likely to become employed. Adjusting for the non-White concentration or ethnic diversity of the neighbourhood did not change this negative effect of deprivation.

Figure 5-7: The effect of deprivation on the likelihood of unemployed men in 1991 becoming employed by 2001 (Source: created by the author using the ONS LS)



	Moderate	High
Model 2	0.820	0.581
Model 3	0.826	0.596
Model 4	0.826	0.596

1. Odds Ratios and 95 % confidence intervals for tertiles 2 (moderately deprived) and 3 (highly deprived) compared to the tertile 1 (affluent). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).
2. Models were adjusted as follows:

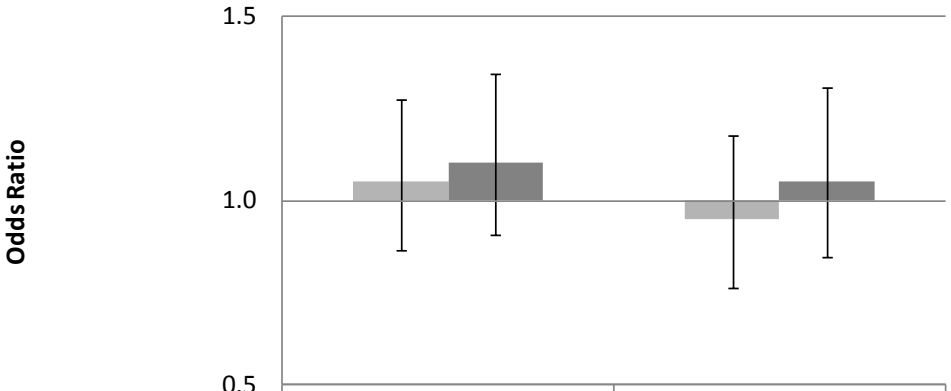
   Model 2: all individual characteristics, region of residence, plus the Townsend deprivation index for CAS wards

   Model 3: as Model 2, plus the percent non-White concentration for CAS wards

   Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 5-8 shows the effect of non-White concentration and ethnic diversity on the likelihood of unemployed men becoming employed by 2001. Men in non-White concentrated neighbourhoods were more likely to become employed. A less clear relationship was found for ethnic diversity. However, none of the effects of ethnic diversity were statistically significant.

Figure 5-8: The effect of non-White concentration and ethnic diversity on the likelihood of unemployed men in 1991 becoming employed by 2001 (Source: created by the author using the ONS LS)



	% non-white concentration	Ethnic diversity
Moderate concentration / diversity	1.050	0.950
High concentration / Low Diversity	1.105	1.053

1. Odds Ratios and 95 % confidence intervals for tertiles 2 (moderately non-White concentrated or moderately diverse) and 3 (highly non-White concentrated or least diverse) compared to the tertile 1 (least non-White concentrated or most ethnically diverse). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Summary of Study 2

Study 2 has showed that there were some ethnic inequalities in the likelihood of men becoming employed between 1991 and 2001. Most ethnic minorities appeared to be less likely to find employment by 2001. Pakistani men were significantly less likely. Black Caribbean men, on the other hand, were more likely to become employed than White men, although this association was not significant. Significant regional variation in the risk of becoming unemployed was found, with men in the North particularly less likely to find employment than those who lived in the South East in 1991. Deprivation was significantly associated with a reduced likelihood of becoming employed, independent of individual factors, region and neighbourhood ethnic diversity. Non-White concentration and ethnic diversity did not play a significant role in determining the likelihood that unemployed men would find employment by 2001.

5.4.3 Study 3: Employment to unemployment or homemaking among women

Table 5-4 shows the percentage change in economic activity among women who were employed in 1991. The percentage who moved into unemployment, or homemaking by 2001, and the univariate association with each independent variable is showed. The 'Total' column indicates the total number of employed women in the 1991 sample, with the % column identifying the percentage of those women who experienced social mobility (transition to a) unemployment or b) homemaking) between 1991 and 2001. Relative Risk Ratios (RRR) indicate the statistical likelihood that an employed woman in 1991 will become either a) unemployed or b) a homemaker by 2001, compared to the likelihood of remaining employed. Relative Risk Ratios are derived from univariate multinomial logistic regression models, adjusting for the clustering of individuals within wards. 95% confidence intervals indicate the reliability of the Relative Risk Ratios and p-values suggest the level of significance, with $p<0.05$ considered statistically significant and highlighted in bold.

3.7% of White women who were employed in 1991 became unemployed by 2001, compared to 10.69% who became homemakers. Ethnic inequalities in each transition were found. Compared to White women who became unemployed, all ethnic minority women (except for the Chinese) were more likely to become unemployed by 2001. This was especially for Pakistani (6.25%) and Bangladeshi (BLANKED%) women, who were 4.23 and 8.11 times more likely to become unemployed than White women. Pakistani (17.19%) and Bangladeshi (31.48%) women were also significantly more likely to become homemakers than White women. On the other hand, Black Caribbean women were significantly less likely to become homemakers (7.19%) than White women (10.69%).

Women aged 40 to 49 were significantly less likely to become unemployed (1.74%) than 18-29 year olds (1.86%). Similarly, women over 30 were increasingly less likely to become homemakers (30-39, 6.73%; 40-49, 8.57%) than 18-29 year old women (15.43%). 1.31% of women who were in a couple in 1991 and 2001 became unemployed, in comparison to 9.95% who became homemakers. Women who were single (2.8%), or became single (2.18%), were over twice as likely to become unemployed as those who were in a couple throughout both years (1.31%). Women who became part of a couple by 2001 were not significantly more likely to become unemployed than those who were in a couple in both 1991 and 2001. In comparison, women who were single (7.81%), or became single (7.21%), were less likely to become homemakers than those who were in a couple throughout (9.95%). On the other hand, 18.98% of women who became part of a couple were over twice as likely to become homemakers as those already in a couple in 1991 and 2001.

2.3% of women with no qualifications throughout became unemployed. On the other hand, 13.95% became homemakers. Women with qualifications throughout, or who gained qualifications by 2001, were significantly more likely to remain in employment compared to those with no qualifications. 1.57% of women homeowners became unemployed, though 9.98% became homemakers. In comparison, privately renting women were 1.56 times more likely to become unemployed (2.28%) and 1.59 times more likely to become homemakers (14.68%). Similarly, socially renting women were 2.26 times more likely to become unemployed (3.37%) and 1.43 times more likely to become homemakers (13.36%). Compared to women born in the UK, 1.71% of whom became unemployed, overseas born women were 1.8 times more likely to become unemployed (3.04%). Overseas women were slightly less likely to become homemakers (9.78%) compared to UK born women (10.72%), but not significantly so. Women who moved within the UK were 1.27 times (1.96%) and 1.78 times (13%) more likely to become unemployed

or a homemaker respectively, compared to those who did not move (1.64% unemployed, 7.79% homemakers).

Employed women in 1991 who were living in the most affluent neighbourhoods had an unemployment rate of 1.42% and a homemaking rate of 10.17% by 2001. In comparison, women in the most deprived neighbourhoods were 1.74 times more likely to become unemployed (2.4%) and 1.15 times more likely to become homemakers (11.42%). Women in less ethnically diverse neighbourhoods were less likely to become unemployed (1.76%) or homemakers (10.17%) compared to those in the most diverse areas (2.09% unemployed, 11.23% homemaking). 1.75% and 10.17% of women in the least non-White concentrated neighbourhoods became unemployed and homemakers respectively. In comparison, women in highly non-White concentrated neighbourhoods were 1.21 times more likely to be unemployed (2.08%) and 1.12 times more likely to become homemakers (11.23%). 1.85% of women in the South East who were employed in 1991 became unemployed by 2001. Little variation was experienced between other regions, except for a significantly lower rate of 1.45% among women living in the North West. 11.96% of employed women in the South East became homemakers, while rates in every other region of England except for East Anglia were lower.

Table 5.4: Univariate associations between the likelihood of employed women in 1991 becoming unemployed or homemakers by 2001, for each independent variable

	Total Employed	**Unemployed**					**Homemaker**				
		%	**RRR**	**95 % CI**		**p**	**%**	**RRR**	**95 % CI**		**p**
Ethnic Group											
White	54395	1.69	ref				10.69	ref			
Indian	1296	3.70	**2.22**	**1.65**	**2.98**	**<0.001**	8.87	0.84	0.69	1.03	0.095
Pakistani	192	6.25	**4.23**	**2.36**	**7.61**	**<0.001**	17.19	**1.85**	**1.27**	**2.69**	**0.001**
Bangladeshi	54	BLANKED	**8.11**	**3.15**	**20.84**	**<0.001**	BLANKED	**4.38**	**2.49**	**7.70**	**<0.001**
Black Caribbean	598	3.85	**2.26**	**1.49**	**3.42**	**<0.001**	7.19	**0.67**	**0.49**	**0.92**	**0.013**

Black African	199	4.52	**2.78**	**1.43**	**5.41**	**0.003**	8.04	0.78	0.47	1.30	0.349
Chinese	151	1.99	1.17	0.37	3.69	0.788	9.93	0.87	0.50	1.50	0.610
Other	664	3.46	**2.15**	**1.41**	**3.26**	**<0.001**	10.99	1.08	0.85	1.38	0.526
Total	57549	1.81					10.65				
Age Group											
18 to 29	22222	1.86	ref				15.43	ref			
30 to 39	17849	1.82	0.88	0.76	1.02	0.089	6.73	**0.39**	**0.37**	**0.42**	**<0.001**
40 to 49	17478	1.74	**0.85**	**0.73**	**0.99**	**0.034**	8.57	**0.51**	**0.48**	**0.55**	**<0.001**
Total	57549	1.81					10.65				
Couple Status											
Couple: 1991 & 2001	29391	1.31	ref				9.95	ref			
Single: 1991 & 2001	13337	2.80	**2.12**	**1.83**	**2.45**	**<0.001**	7.81	**0.78**	**0.72**	**0.84**	**<0.001**
Couple: 1991; Single: 2001	5532	2.91	**2.18**	**1.80**	**2.63**	**<0.001**	7.21	**0.72**	**0.64**	**0.80**	**<0.001**
Single: 1991; Couple: 2001	9289	1.31	1.14	0.92	1.40	0.225	18.98	**2.11**	**1.98**	**2.26**	**<0.001**
Total	57549	1.81					10.65				
Qualifications											
None at all	11613	2.30	ref				13.95	ref			
Qualifications: 1991 & 2001	10255	1.04	**0.41**	**0.33**	**0.52**	**<0.001**	7.18	**0.47**	**0.43**	**0.52**	**<0.001**
None: 1991; Gained: 2001	35656	1.87	**0.78**	**0.67**	**0.90**	**0.001**	10.56	**0.72**	**0.68**	**0.77**	**<0.001**
Total	57550	1.81					10.65				
Household Tenure											
Owner	47608	1.57	ref				9.98	ref			
Private renter	3243	2.28	**1.56**	**1.23**	**1.99**	**<0.001**	14.68	**1.59**	**1.43**	**1.76**	**<0.001**
Social renter	6505	3.37	**2.26**	**1.93**	**2.65**	**<0.001**	13.36	**1.43**	**1.32**	**1.55**	**<0.001**
Total	57548	1.81					10.65				
Migrant Generation											
Born in the UK	53204	1.71	ref				10.72	ref			
Born overseas	4345	3.04	**1.80**	**1.49**	**2.18**	**<0.001**	9.78	0.92	0.83	1.03	0.136
Total	57549	1.81					10.65				
Internal Migrant											
Non-mover	25987	1.64	ref				7.79	ref			
Mover	31539	1.96	**1.27**	**1.12**	**1.44**	**<0.001**	13.00	**1.78**	**1.68**	**1.89**	**<0.001**
Total	57550	1.81					10.65				
Deprivation											
Low	20136	1.42	ref				10.17	ref			

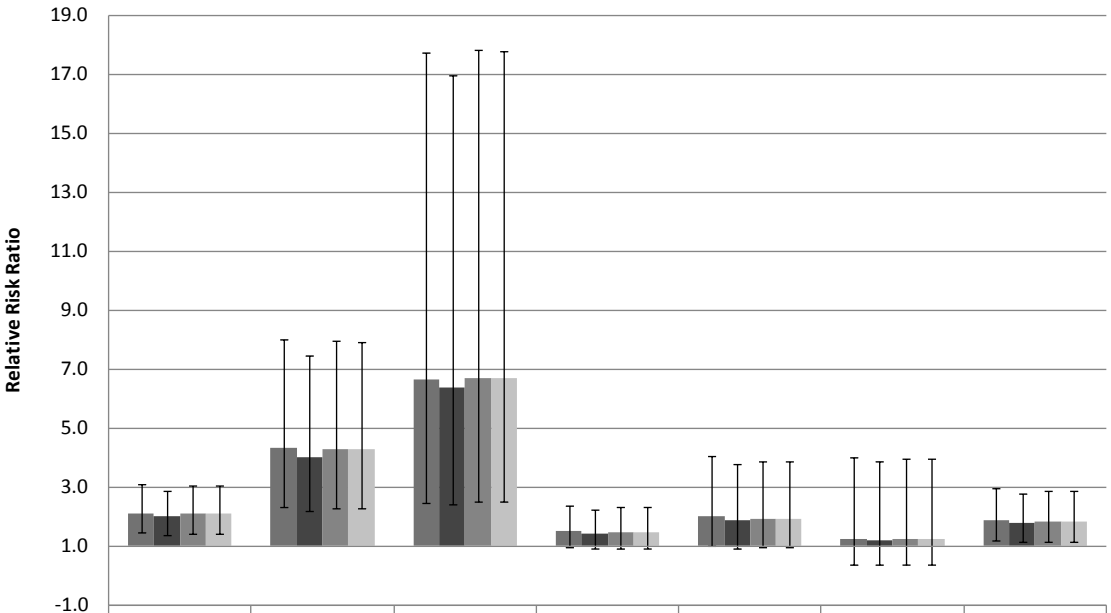
Moderate	19725	1.71	**1.22**	**1.04**	**1.42**	**0.014**	10.36	1.03	0.96	1.10	0.467
High	16940	2.40	**1.74**	**1.49**	**2.02**	**<0.001**	11.42	**1.15**	**1.08**	**1.23**	**<0.001**
Total	57549	1.81					10.65				
Ethnic diversity											
High	18547	2.09	ref				11.23	ref			
Moderate	19338	1.60	**0.76**	**0.65**	**0.88**	**<0.001**	10.44	**0.92**	**0.86**	**0.98**	**0.010**
Low	18916	1.76	**0.83**	**0.71**	**0.96**	**0.012**	10.17	**0.89**	**0.83**	**0.95**	**0.001**
Total	57549	1.81					10.65				
% Non-White											
Low	18932	1.75	ref				10.17	ref			
Moderate	19332	1.61	0.92	0.78	1.08	0.291	10.44	1.03	0.96	1.10	0.413
High	18537	2.08	**1.21**	**1.04**	**1.40**	**0.013**	11.23	**1.12**	**1.05**	**1.20**	**0.001**
Total	57549	1.81					10.65				
Standard region											
North	3433	1.40	0.74	0.54	1.01	0.055	9.70	**0.79**	**0.69**	**0.89**	**<0.001**
Yorkshire	5999	1.88	1.00	0.81	1.24	0.983	10.04	**0.82**	**0.74**	**0.90**	**<0.001**
East Midlands	5070	2.07	1.11	0.89	1.37	0.353	10.18	**0.84**	**0.76**	**0.93**	**0.001**
East Anglia	2318	1.64	0.88	0.63	1.21	0.417	10.74	0.88	0.76	1.01	0.079
South East	21656	1.85	ref				11.96	ref			
South West	5308	1.81	0.93	0.74	1.17	0.525	10.44	**0.86**	**0.78**	**0.95**	**0.003**
West Midlands	6196	2.15	1.14	0.93	1.40	0.211	9.65	**0.79**	**0.72**	**0.87**	**<0.001**
North West	7564	1.45	**0.74**	**0.60**	**0.93**	**0.008**	9.06	**0.74**	**0.67**	**0.81**	**<0.001**
Total	57548	1.81					10.65				

Source: ONS LS, created by the Author

Figure 5-9 shows the ethnic inequalities among employed women in 1991 and their likelihood of becoming unemployed by 2001, adjusting for individual factors, region, and neighbourhood characteristics at different stages of the modelling process. Overall, all ethnic minority women were more likely to become unemployed than White women (though not significantly for the Chinese). Before and after adjusting for all other independent variables, Indian, Pakistani and especially Bangladeshi women were all significantly more likely to become unemployed than White women.

Figure 5-10 shows the ethnic inequalities among employed women in 1991 and their likelihood of becoming homemakers by 2001, adjusting for individual factors, region, and neighbourhood characteristics at different stages of the modelling process. Significant ethnic inequalities were observed and they were relatively unaffected after adjusting for neighbourhood characteristics. Indian and Black Caribbean women were significantly less likely to become homemakers than White women. Black African and Chinese women were also less likely, though these ethnic inequalities were not statistically significant. In comparison, Bangladeshi women were significantly more likely to become homemakers. Pakistani women were also more likely to become homemakers, though this association was not significant before or after controlling for neighbourhood characteristics.

Figure 5-9: Ethnic inequalities in the likelihood of employed women in 1991 becoming unemployed by 2001 (Source: created by the author using the ONS LS)



	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Chinese	Other
Model 1	2.115	4.318	6.622	1.512	2.008	1.240	1.867
Model 2	1.985	4.023	6.386	1.407	1.868	1.200	1.769
Model 3	2.078	4.263	6.700	1.457	1.909	1.231	1.820
Model 4	2.074	4.255	6.687	1.455	1.906	1.230	1.818

1. Relative risk ratios and 95 % confidence intervals for each ethnic group compared to the White group. 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

2. Models were adjusted as follows:

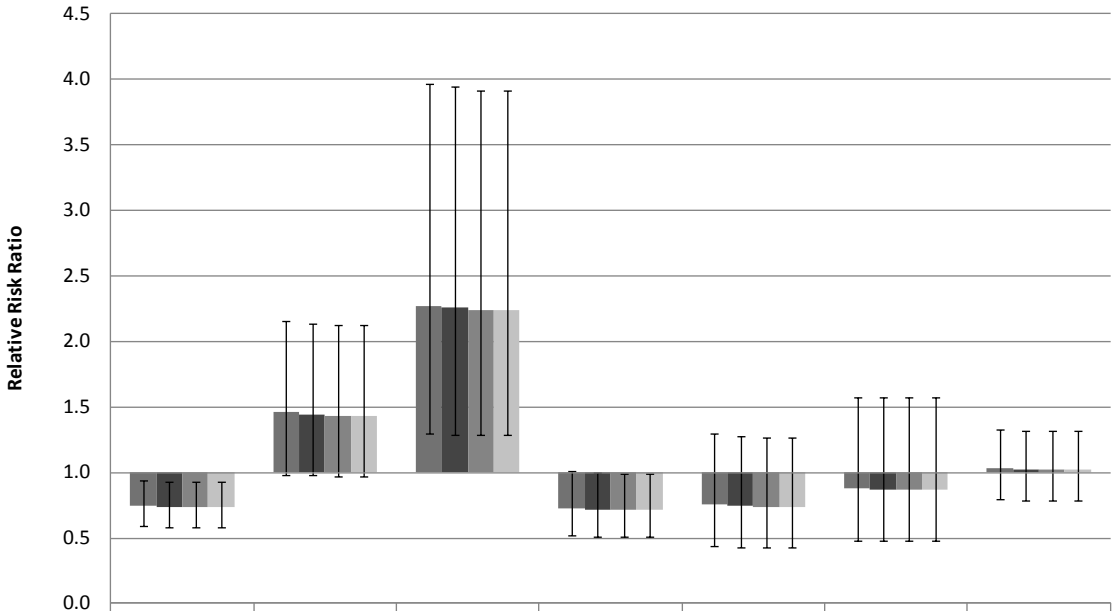
   Model 1: all individual characteristics, plus region of residence

   Model 2: as Model 1, plus the Townsend deprivation index for CAS wards

   Model 3: as Model 2, plus the percent non-White concentration for CAS wards

   Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 5-10: Ethnic inequalities in the likelihood of employed women in 1991 becoming homemakers by 2001 (Source: created by the author using the ONS LS)



	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Chinese	Other
Model 1	0.745	1.457	2.270	0.725	0.754	0.874	1.030
Model 2	0.740	1.446	2.260	0.717	0.745	0.872	1.022
Model 3	0.735	1.435	2.243	0.712	0.740	0.872	1.017
Model 4	0.735	1.435	2.243	0.712	0.740	0.872	1.017

1. Relative risk ratios and 95 % confidence intervals for each ethnic group compared to the White group. 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).
2. Models were adjusted as follows:

   Model 1: all individual characteristics, plus region of residence

   Model 2: as Model 1, plus the Townsend deprivation index for CAS wards

   Model 3: as Model 2, plus the percent non-White concentration for CAS wards

   Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 5-11 shows the regional inequalities in the rate of women who were employed in 1991 becoming unemployed by 2001. Regions with thick boundaries had significantly different percentages to that in the South East. Significance levels were calculated from multinomial logit regression, adjusted for individual factors, deprivation and non-White concentration. Unlike for men, a clear north-south gradient was not found. Women resident in the North and North West were significantly less likely to become unemployed compared to those in the South East. Other regions with lower percentages of unemployment were East Anglia and the South West, though women in these regions were not significantly less likely to become unemployed than those in the South East. Women in Yorkshire, the West Midlands and the East Midlands, were all more likely to become unemployed than those in the South East. However, these higher percentages were not statistically significant.

Figure 5-12 shows the regional inequality among women who were employed in 1991, and the percentage that became homemakers by 2001. Regions with a thick boundary indicated percentages that were significantly different ($p<0.05$) from that in the South East. Significance levels were calculated from multinomial logit regression, adjusted for individual factors, deprivation and non-White concentration. From Figure 5-12, it is very clear that women in the South East were more likely to move from employment and into homemaking than women in any other region of England, independent of other characteristics. A north-south gradient was observed, with the lowest rates of becoming a homemaker among women in the North, North West and West Midlands.

Figure 5-13 shows the effect of deprivation on women who were employed in 1991 and their likelihood of becoming unemployed by 2001. Deprivation was positively associated with an increased likelihood of becoming unemployed, with those women in the most deprived neighbourhoods 1.275 times more likely to become unemployed than those in the more affluent areas (Model 2, adjusting for individual factors and region). After controlling for neighbourhood

ethnic diversity, the effect of deprivation increased to a relative risk ratio of 1.365 and remained statistically significant. In comparison, Figure 5-14 shows no significant effect of deprivation on the likelihood that employed women in 1991 would become homemakers by 2001.

Figure 5-15 shows the effect of neighbourhood ethnic diversity on the likelihood of employed women becoming unemployed by 2001. After adjusting for individual factors, region and deprivation, women in more non-White concentrated neighbourhoods were significantly less likely to become unemployed compared to those in less non-White concentrated neighbourhoods. Similarly, women living in less ethnically diverse neighbourhoods were more likely to become unemployed than those who lived in more diverse areas. On the other hand, Figure 5-16 shows that the likelihood of employed women becoming homemakers was not related to the non-White ethnic concentration or ethnic diversity of the neighbourhoods in which they lived.

Figure 5-11: The likelihood of employed women in 1991 becoming unemployed by 2001, by 1991 Standard Regions (Source: created by the author using the ONS LS)

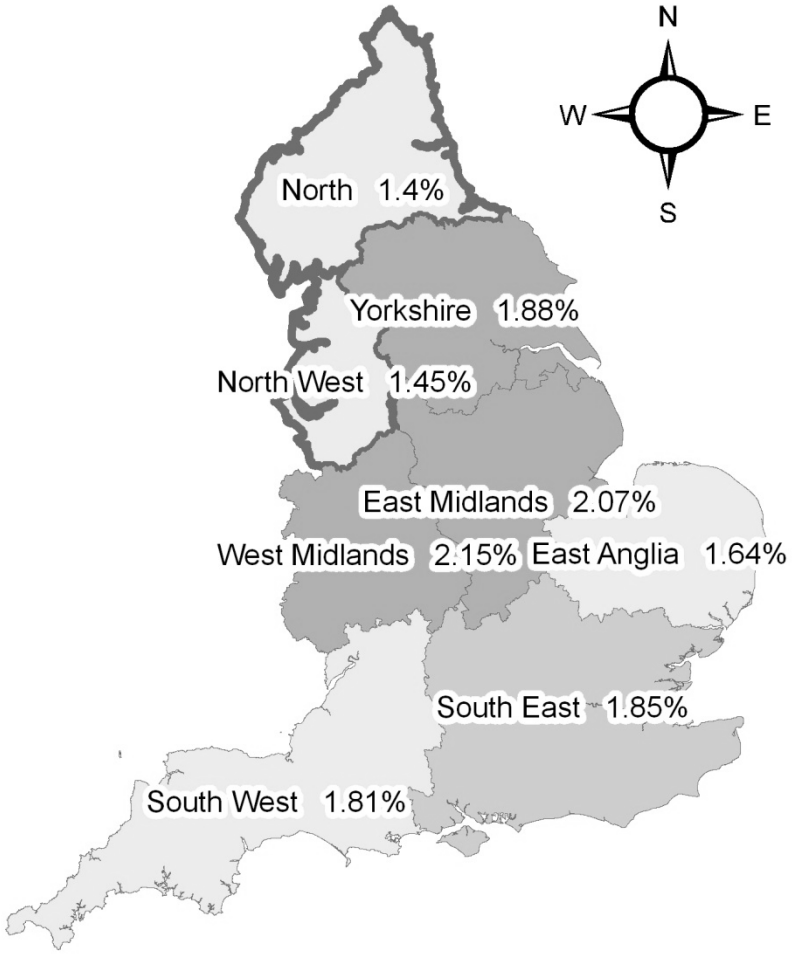
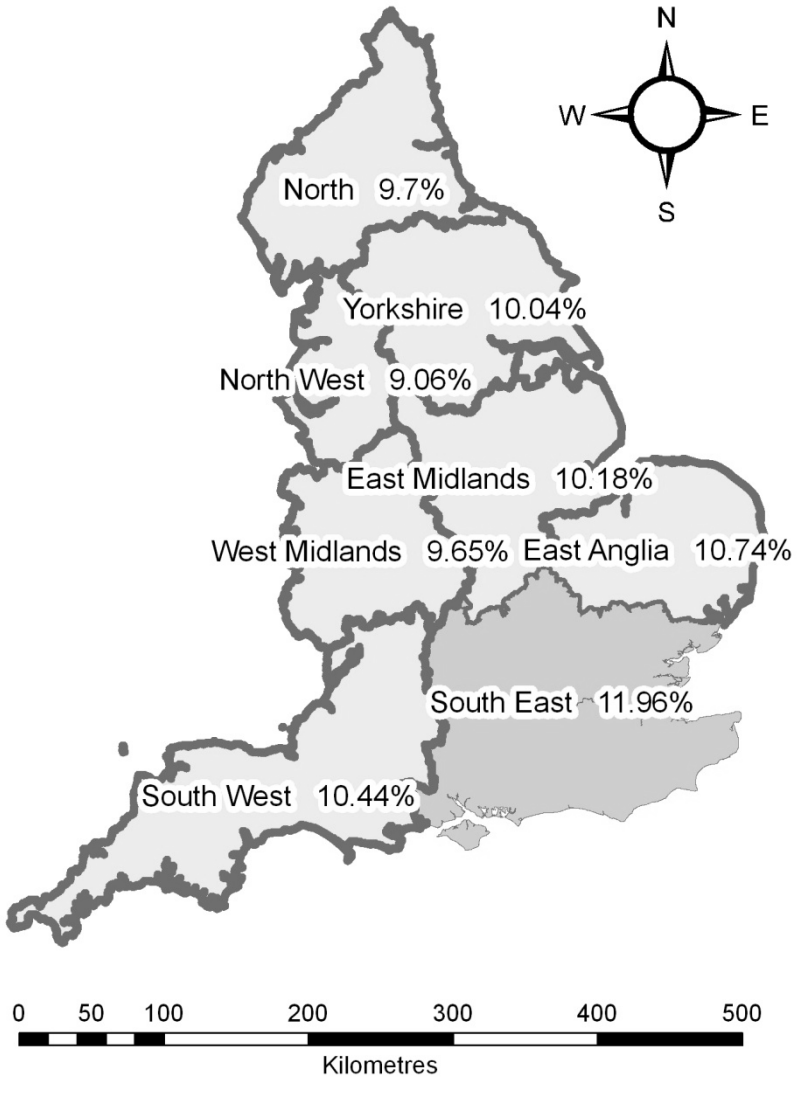
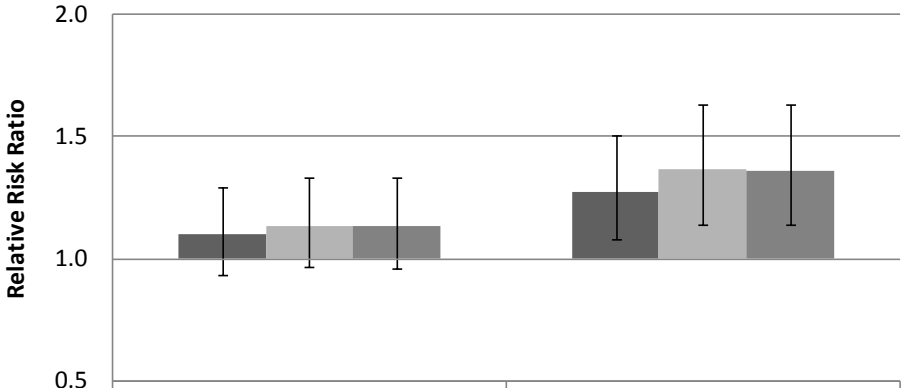


Figure 5-12: The likelihood of employed women in 1991 becoming homemakers by 2001, by 1991 Standard Regions (Source: created by the author using the ONS LS)



Reference | Higher than reference | Lower than reference | Bold outline = significantly different from reference (P<0.05)

Figure 5-13: Effect of deprivation on the likelihood of employed women in 1991 becoming unemployed by 2001 (Source: created by the author using the ONS LS)



	Moderate	High
Model 2	1.101	1.275
Model 3	1.136	1.365
Model 4	1.135	1.363

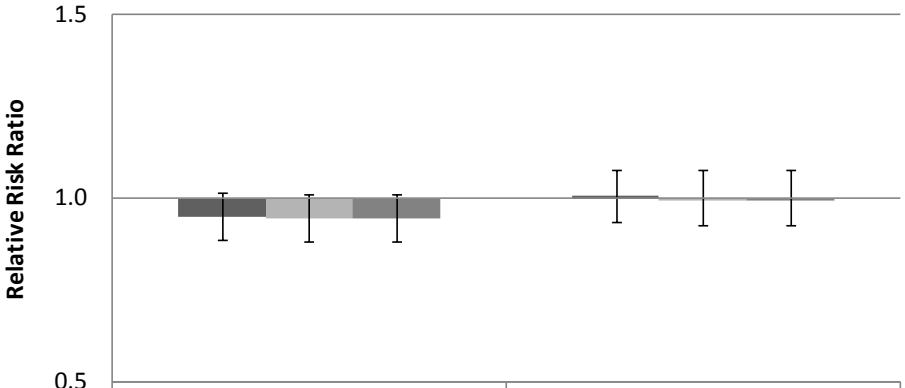
1. Relative risk ratios and 95 % confidence intervals for tertiles 2 (moderately deprived) and 3 (highly deprived) compared to the tertile 1 (affluent). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).
2. Models were adjusted as follows:

   Model 2: all individual characteristics, region of residence, plus the Townsend deprivation index for CAS wards

   Model 3: as Model 2, plus the percent non-White concentration for CAS wards

   Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 5-14: Effect of deprivation on the likelihood of employed women in 1991 becoming homemakers by 2001 (Source: created by the author using the ONS LS)



	Moderate	High
Model 2	0.948	1.007
Model 3	0.946	0.999
Model 4	0.946	0.999

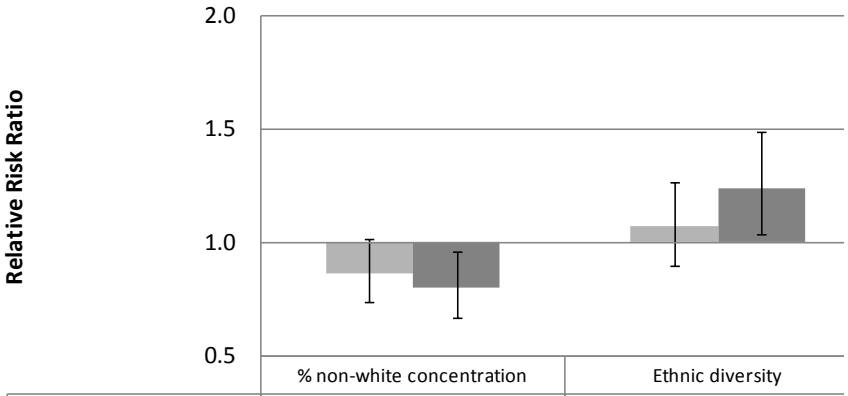
1. Relative risk ratios and 95 % confidence intervals for tertiles 2 (moderately deprived) and 3 (highly deprived) compared to the tertile 1 (affluent). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).
2. Models were adjusted as follows:

   Model 2: all individual characteristics, region of residence, plus the Townsend deprivation index for CAS wards

   Model 3: as Model 2, plus the percent non-White concentration for CAS wards

   Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

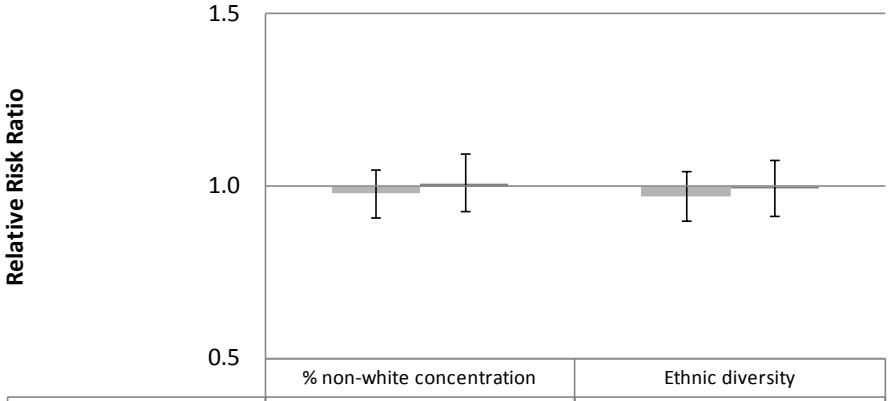
Figure 5-15: The effect of non-White concentration and ethnic diversity on the likelihood of employed women in 1991 becoming unemployed by 2001 (Source: created by the author using the ONS LS)



	% non-white concentration	Ethnic diversity
Moderate concentration / diversity	0.866	1.071
High concentration / Low Diversity	0.803	1.241

1. Relative risk ratios and 95 % confidence intervals for tertiles 2 (moderately non-White concentrated or moderately diverse) and 3 (highly non-White concentrated or least diverse) compared to the tertile 1 (least non-White concentrated or most ethnically diverse). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Figure 5-16: The effect of non-White concentration and ethnic diversity on the likelihood of employed women in 1991 becoming homemakers by 2001 (Source: created by the author using the ONS LS)



	% non-white concentration	Ethnic diversity
Moderate concentration / diversity	0.977	0.969
High concentration / Low Diversity	1.008	0.992

1. Relative risk ratios and 95 % confidence intervals for tertiles 2 (moderately non-White concentrated or moderately diverse) and 3 (highly non-White concentrated or least diverse) compared to the tertile 1 (least non-White concentrated or most ethnically diverse). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Summary of Study 3

This study has showed that ethnic inequalities in the likelihood of employed women in 1991 becoming unemployed or economically inactive for homemaking reasons persist after controlling for individual factors, region and neighbourhood characteristics. Indian, Pakistani and especially Bangladeshi women were all significantly more likely to become unemployed than White women. Indian and Black Caribbean women were significantly less likely to become homemakers than White women. In comparison, Bangladeshi women were significantly more likely to become homemakers.

Some regional variation was observed, with women in the North and North West less likely to become unemployed than those in the South East. It was also the case that women in the South East were more likely to become homemakers compared to most other regions of England.

Women living in more deprived neighbourhoods were more likely to become unemployed. Also, those in less non-White concentrated and less ethnically diverse neighbourhoods were more likely to become unemployed. In comparison, the likelihood of becoming a homemaker was not related to neighbourhood deprivation or ethnic diversity.

5.4.4 Study 4: Unemployment to employment or homemaking among women

Table 5-5 shows the percentage change in economic activity among women who were unemployed in 1991. The percentage who moved into employment, or homemaking by 2001, and the univariate association with each independent variable is showed. The 'Total' column indicates the total number of unemployed women in the 1991 sample, with the % column identifying the percentage of those women who experienced social mobility (transition to a) employment or b) homemaking) between 1991 and 2001. Relative Risk Ratios (RRR) indicate the statistical likelihood that an unemployed woman in 1991 will become either a) employed or b) a homemaker by 2001, compared to the likelihood of remaining unemployed. Relative Risk Ratios are derived from univariate multinomial logistic regression models, adjusting for the clustering of individuals within wards. 95% confidence intervals indicate the reliability of the Relative Risk Ratios and p-values suggest the level of significance, with $p<0.05$ considered statistically significant and highlighted in bold.

Overall, only 3507 women were in this sample, 3010 of whom were White. Therefore, only 497 women were from ethnic minority groups, ranging from 162 Indians to only 16 Chinese. Although only 38.96% of Pakistani women became employed compared to 70.99% of White women, the difference is marginally insignificant ($p=0.053$) because the small sample size does not provide enough statistical power to detect significant differences. For Bangladeshi women, the sample size was too small for the software to calculate relative risk ratios (n=29). Despite this, it is still useful to explore the ethnic differences under the assumption that if sample sizes were far larger than I currently have access to, similar relationships would become statistically significant ($p<0.05$).

Compared to 66.74% of unemployed White women finding a job by 2001, only Indian (70.99%) and Black African (BLANKED %) were more likely. Only BLANKED % of unemployed Bangladeshi women found employment by 2001. Meanwhile, 25.78% of unemployed White women became homemakers by 2001. In comparison, Pakistani (51.95%) and Bangladeshi (BLANKED %) were more likely to become homemakers. Black Caribbean (19.74%), Chinese (BLANKED %) and especially Black African (BLANKED %) women were less likely to move from unemployment into homemaking.

Older unemployed women (30-39, 71.69%; 40-54, 71.14%) were more likely to find employment by 2001 compared to 18-29 year olds (62.71%), though not significantly. In comparison, older unemployed women were significantly less likely to become homemakers (30-39, 20.52%; 40-49, 19.37%) compared to 18-29 year olds (30.43%). Unemployed women who were in a couple in 1991 and 2001 were 71.21% more likely to become employed and 24.38% more likely to become a homemaker. In comparison, women who were single in 1991 and 2001, or became single, were significantly less likely to become employed or a homemaker.

49.95% and 40.7% of unemployed women with no qualifications became employed and homemakers respectively. In comparison, women with qualifications in 1991 and 2001 were 3.72 times more likely to find employment (84.66%) and those who gained qualifications were 1.81 times more likely (70.25%). Women who gained qualifications were significantly less likely to become homemakers (22.59%), though those who had qualifications in 1991 and 2001 were not significantly less likely despite only 11.18% (because of the small proportion of women with qualifications in 1991 and 2001 who remained unemployed, reported in Table 1).

71.51% of unemployed women homeowners found employment by 2001, while 23.01% became homemakers. Women in private (67.22%) and socially (55.03%) rented household tenure were

significantly less likely to become employed by 2001. Private renters were also significantly less likely than homeowners to move from unemployment into homemaking.

Unemployed women born overseas were less likely to find employment (61.49%) compared to those born in the UK (66.79%), though not significantly. Similarly, overseas born women were more likely to become homemakers (30.64%) compared to the UK born (25.8%), but this difference was also not significant.

There was no significant difference in the likelihood of unemployed women finding employment depending upon whether they moved within the UK (64.67%) or stayed in the same place (68.99%). However, women who moved were 1.59% times more likely to become homemakers (28.37%) than those who did not move (22.47%).

Unemployed women resident in the most deprived neighbourhoods (60.74%) were significantly less likely to become employed than those living in more affluent areas (72.17%). Similarly, those in the most deprived neighbourhoods were also significantly less likely to become homemakers (30.22%) compared to those living in affluent areas (23.33%). Unemployed women in less ethnically diverse areas were significantly more likely to find employment (67.72%) or become homemakers (26.44%) compared to those living in more diverse neighbourhoods (64.00% and 27.31% respectively). Similarly, unemployed women in the more non-White concentrated neighbourhoods were significantly less likely to become employed (64%) or homemakers (27.31%) compared to those in less non-White concentrated areas (67.72% and 26.44% respectively). Compared to unemployed women in the South East (66.59%), only women in the South West were significantly more likely to find employment by 2001 (73.29%). No significant regional differences were found for unemployed women becoming homemakers.

Table 5.5: Univariate associations between the likelihood of unemployed women in 1991 becoming employed or homemakers by 2001, for each independent variable

	Unemployed	Employed					Homemaker				
	Total	**%**	**RRR**	**95 % CI**		**p**	**%**	**RRR**	**95 % CI**		**p**
Ethnic Group											
White	3010	66.74	ref				25.78	ref			
Indian	162	70.99	1.38	0.65	2.91	0.403	23.46	1.17	0.52	2.62	0.703
Pakistani	77	38.96	0.47	0.22	1.01	0.053	51.95	1.63	0.75	3.54	0.221
Bangladeshi	29	BLANKED					BLANKED	.			
Black Caribbean	76	69.74	0.73	0.34	1.55	0.408	19.74	0.53	0.22	1.28	0.160
Black African	43	BLANKED	0.88	0.30	2.52	0.807	BLANKED	0.43	0.12	1.52	0.190
Chinese	16	BLANKED	0.55	0.12	2.52	0.439	BLANKED	0.28	0.04	2.03	0.210
Other	94	61.70	0.89	0.40	1.99	0.780	30.85	1.18	0.51	2.73	0.700
Total	3507	66.04					26.46				
Age Group											
18 to 29	2159	62.71	ref				30.43	ref			
30 to 39	809	71.69	1.01	0.73	1.40	0.941	20.52	**0.59**	**0.41**	**0.84**	**0.004**
40 to 49	537	71.14	0.82	0.58	1.15	0.246	19.37	**0.45**	**0.31**	**0.67**	**<0.001**
Total	3505	66.08					26.45				
Couple Status											
Couple: 1991 & 2001	1042	71.21	ref				24.38	ref			
Single: 1991 & 2001	1494	64.66	**0.37**	**0.26**	**0.53**	**<0.001**	24.70	**0.42**	**0.29**	**0.62**	**<0.001**
Couple: 1991; Single: 2001	319	63.95	**0.46**	**0.28**	**0.76**	**0.002**	26.96	**0.56**	**0.32**	**0.96**	**0.035**
Single: 1991; Couple: 2001	650	62.15	0.89	0.53	1.48	0.645	33.54	1.39	0.82	2.36	0.216
Total	3505	66.08					26.45				
Qualifications											
None at all	941	49.95	ref				40.70	ref			
Qualifications: 1991 & 2001	313	84.66	**3.72**	**2.04**	**6.78**	**<0.001**	11.18	0.60	0.31	1.17	0.136
None: 1991; Gained: 2001	2249	70.25	**1.81**	**1.37**	**2.41**	**<0.001**	22.59	**0.71**	**0.53**	**0.95**	**0.020**
Total	3503	66.09					26.43				
Household Tenure											
Owner	2043	71.51	ref				23.01	ref			
Private renter	421	67.22	**0.54**	**0.37**	**0.79**	**0.002**	23.52	**0.60**	**0.39**	**0.93**	**0.023**
Social renter	1023	55.03	**0.40**	**0.30**	**0.52**	**<0.001**	34.51	0.79	0.59	1.05	0.106
Total	3505	66.08					26.45				
Migrant Generation											
Born in the UK	3035	66.79	ref				25.80	ref			

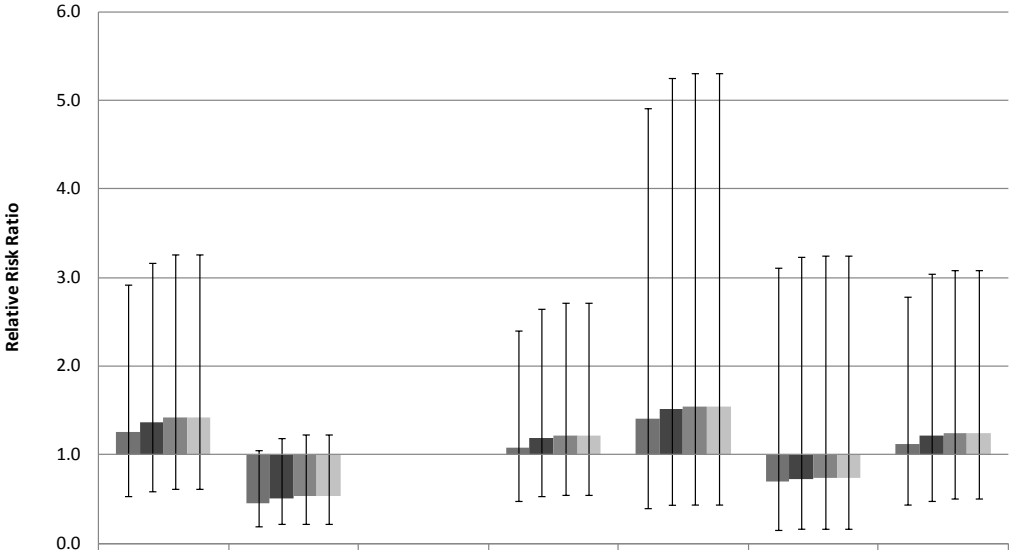
Born overseas	470	61.49	0.87	0.60	1.27	0.473	30.64	1.13	0.76	1.69	0.536
Total	3505	66.08					26.45				
Internal Migrant											
Non-mover	1135	68.99	ref				22.47	ref			
Mover	2369	64.67	1.18	0.90	1.54	0.232	28.37	**1.59**	**1.18**	**2.13**	**0.002**
Total	3504	66.07					26.46				
Deprivation											
Low	733	72.17	ref				23.33	ref			
Moderate	1026	70.76	0.67	0.43	1.03	0.070	22.61	0.66	0.41	1.05	0.081
High	1671	60.74	**0.42**	**0.28**	**0.63**	**<0.001**	30.22	**0.65**	**0.42**	**0.99**	**0.043**
Total	3505	66.08					26.45				
Ethnic diversity											
High	1461	64.00	ref				27.31	ref			
Moderate	959	67.88	1.34	0.97	1.85	0.076	25.23	1.17	0.82	1.65	0.384
Low	1010	67.72	**1.57**	**1.13**	**2.19**	**0.007**	26.44	**1.44**	**1.02**	**2.04**	**0.039**
Total	3505	66.08					26.45				
% Non-White											
Low	1010	67.72	ref				26.44	ref			
Moderate	959	67.88	0.85	0.59	1.23	0.394	25.23	0.81	0.54	1.20	0.299
High	1461	64.00	**0.64**	**0.46**	**0.88**	**0.007**	27.31	**0.69**	**0.49**	**0.98**	**0.039**
Total	3505	66.08					26.45				
Standard region											
North	242	63.64	0.95	0.55	1.65	0.867	28.93	1.13	0.64	2.02	0.675
Yorkshire	314	65.29	0.92	0.59	1.46	0.732	26.11	0.95	0.59	1.55	0.850
East Midlands	277	67.51	0.90	0.52	1.55	0.704	24.19	0.82	0.45	1.50	0.523
East Anglia	113	69.03	1.09	0.53	2.28	0.808	23.89	0.95	0.42	2.13	0.892
East Anglia	1302	66.59	ref				25.73	ref			
South West	292	73.29	**1.85**	**1.02**	**3.35**	**0.044**	22.26	1.41	0.75	2.64	0.284
West Midlands	449	62.36	0.90	0.59	1.36	0.606	29.40	1.06	0.68	1.64	0.809
North West	515	64.08	1.07	0.70	1.62	0.763	28.93	1.21	0.79	1.87	0.378
Total	3504	66.07					26.46				

Source: ONS LS, created by the Author

Figure 5-17 shows the extent of the ethnic differences in unemployed women becoming employed, after adjustment for individual factors, region and neighbourhood characteristics. The results are similar to those reported earlier, with no significant differences between ethnic

minorities and the White group. Pakistani and Chinese women appeared less likely to find employment. Indian, Black Caribbean and Black African women appeared slightly more likely to find employment. Figure 5-18 shows the extent of the ethnic differences in unemployed women becoming homemakers, after adjustment for individual factors, region and neighbourhood characteristics. Again no significant differences were found. Pakistani women appeared more likely to become homemakers, but Indian, Black Caribbean, Black African and Chinese women seemed less likely.

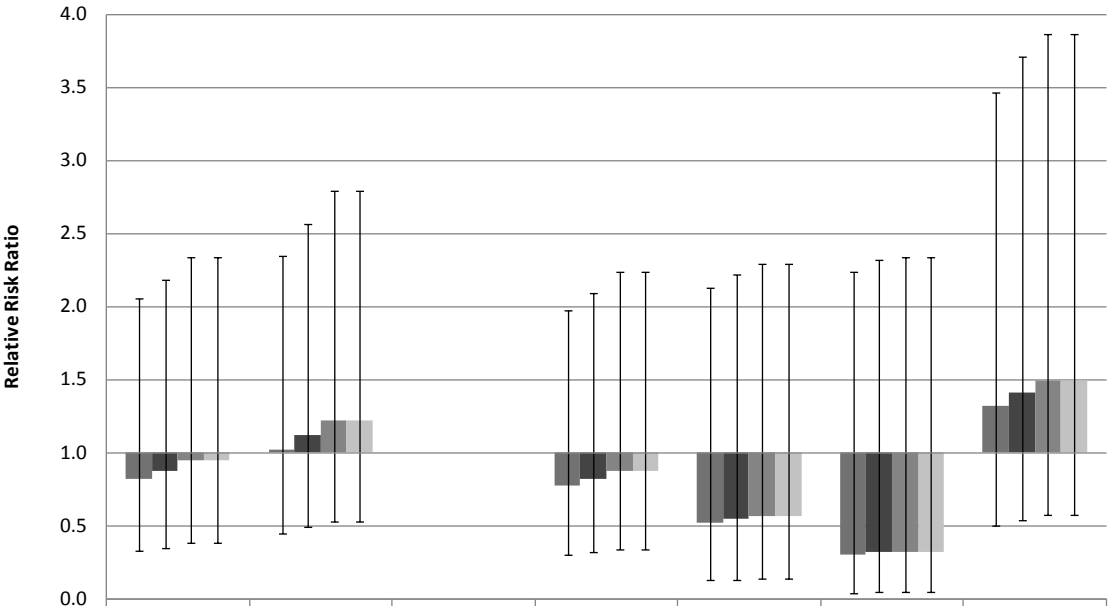
Figure 5-17: Ethnic inequalities in the likelihood of unemployed women in 1991 becoming employed by 2001 (Source: created by the author using the ONS LS)



	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Chinese	Other
Model 1	1.256	0.447		1.079	1.410	0.692	1.114
Model 2	1.372	0.508		1.183	1.513	0.730	1.213
Model 3	1.421	0.529		1.218	1.537	0.734	1.246
Model 4	1.421	0.529		1.218	1.537	0.734	1.246

1. Relative risk ratios and 95 % confidence intervals for each ethnic group compared to the White group. 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).
2. Models were adjusted as follows:
   Model 1: all individual characteristics, plus region of residence
   Model 2: as Model 1, plus the Townsend deprivation index for CAS wards
   Model 3: as Model 2, plus the percent non-White concentration for CAS wards
   Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 5-18: Ethnic inequalities in the likelihood of unemployed women in 1991 becoming homemakers by 2001 (Source: created by the author using the ONS LS)



	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Chinese	Other
Model 1	0.823	1.022		0.777	0.523	0.304	1.325
Model 2	0.878	1.124		0.821	0.546	0.321	1.414
Model 3	0.945	1.222		0.874	0.566	0.323	1.494
Model 4	0.945	1.222		0.874	0.566	0.323	1.494

1. Relative risk ratios and 95 % confidence intervals for each ethnic group compared to the White group. 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).
2. Models were adjusted as follows:
   Model 1: all individual characteristics, plus region of residence
   Model 2: as Model 1, plus the Townsend deprivation index for CAS wards
   Model 3: as Model 2, plus the percent non-White concentration for CAS wards
   Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 5-19 shows the regional inequalities in unemployed women finding employment by 2001. Regions with a thick boundary were significantly difference from the South East ($p<0.05$). Compared to the South East, none of the regional rates were significantly different after controlling for individual factors and neighbourhood characteristics. However, it is clear that a general north-south gradient is evident. Unemployed women in the northern regions were less likely to find employment than those in the South East, whereas those in the South West and East were more likely. Another north-south gradient was observed for unemployed women becoming

homemakers in Figure 5-20, with higher rates found in the north compared to the South East and lower rates in the South West.

Figure 5-21 shows the effect of deprivation on the likelihood of unemployed women finding employment by 2001. Adjusting for individual factors and region, women in more deprived neighbourhoods were significantly less likely to find employment. However, after controlling for non-White concentration or ethnic diversity, the effect of deprivation was no longer statistically significant. Figure 5-22 shows the effect of deprivation on the likelihood of unemployed women becoming homemakers. Initially, deprivation was associated with a lower likelihood of becoming a homemaker. However, again after adjusting for the ethnic diversity of the neighbourhood, the deprivation effect was no longer statistically significant. Figure 5-23 and 5-24 illustrate the effects of non-White ethnic concentration and ethnic diversity on the likelihood of unemployed women becoming employed or homemakers were not statistically significant.

Figure 5-19: The likelihood of unemployed women in 1991 becoming employed by 2001, by 1991 Standard Regions

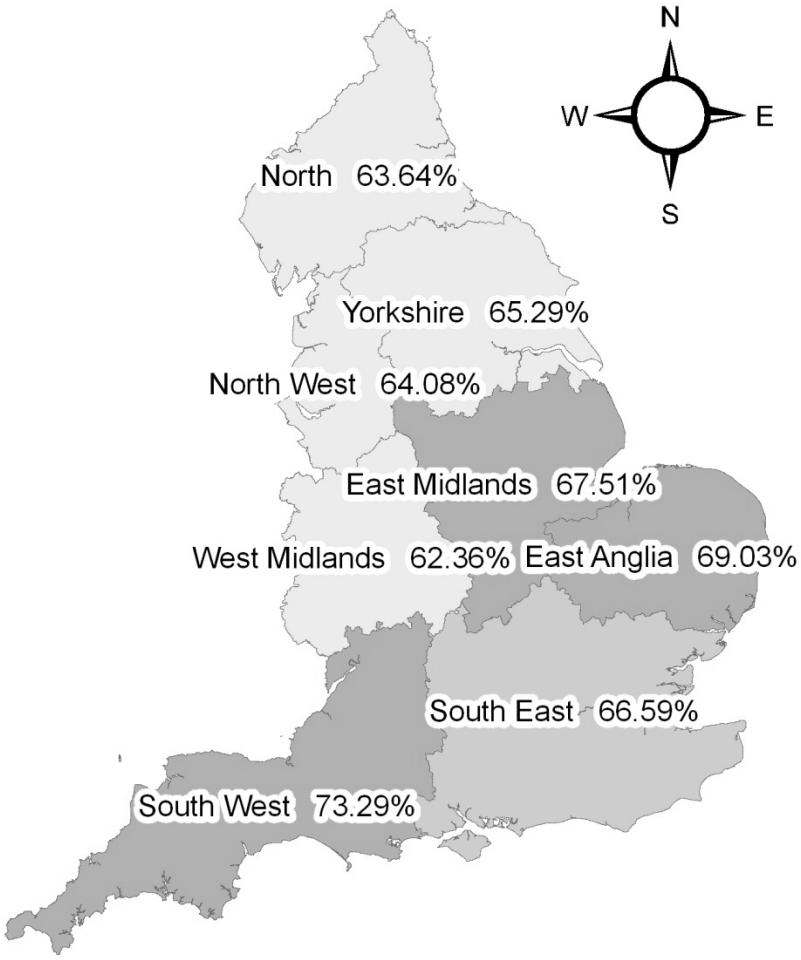
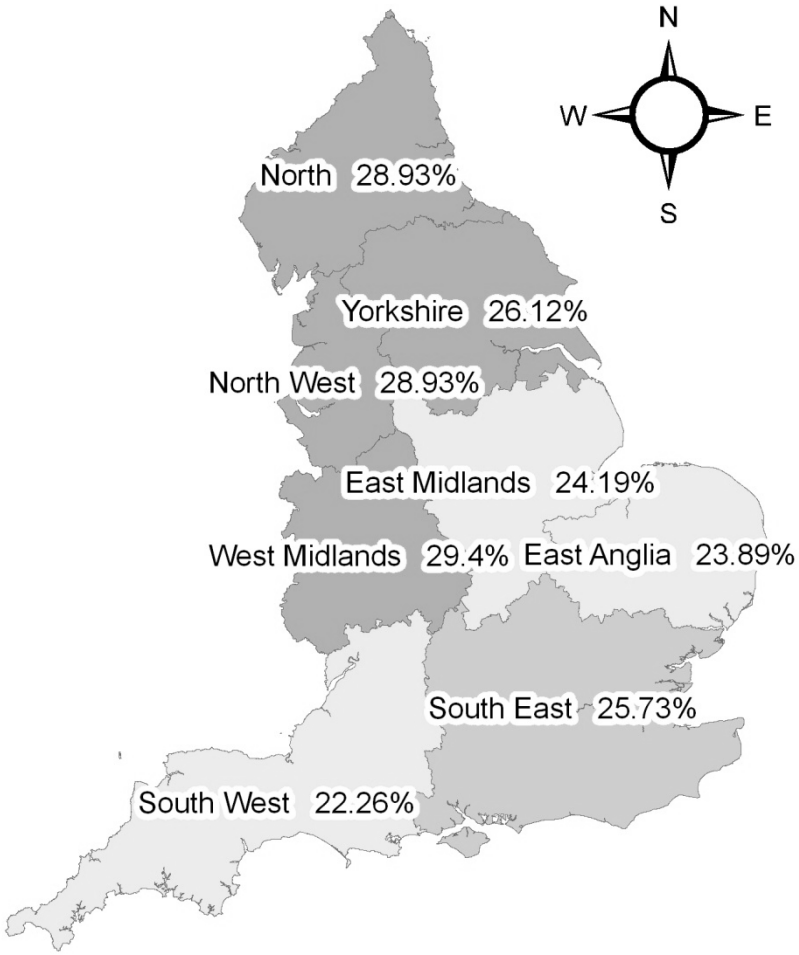
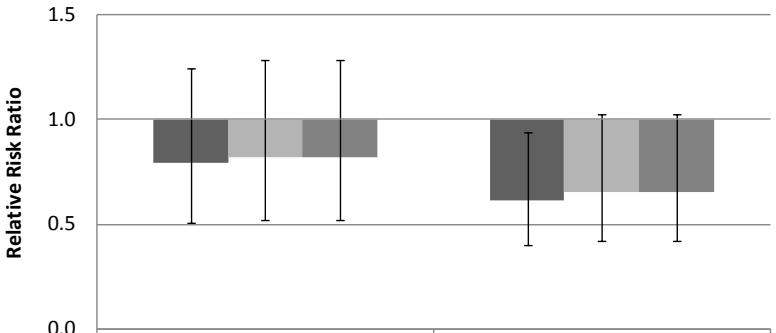


Figure 5-20: The likelihood of unemployed women in 1991 becoming homemakers by 2001, by 1991 Standard Regions



Reference | Higher than reference | Lower than reference | Bold outline = significantly different from reference (P<0.05)

Figure 5-21: Effect of deprivation on the likelihood of unemployed women in 1991 becoming employed by 2001



	Moderate	High
Model 2	0.794	0.617
Model 3	0.817	0.656
Model 4	0.817	0.656

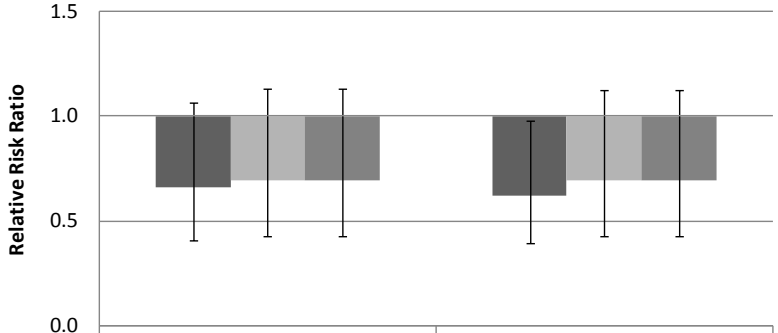
1. Relative risk ratios and 95 % confidence intervals for tertiles 2 (moderately deprived) and 3 (highly deprived) compared to the tertile 1 (affluent). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).
2. Models were adjusted as follows:

   Model 2: all individual characteristics, region of residence, plus the Townsend deprivation index for CAS wards

   Model 3: as Model 2, plus the percent non-White concentration for CAS wards

   Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards
3. Created by the author using the ONS LS

Figure 5-22: Effect of deprivation on the likelihood of employed women in 1991 becoming homemakers by 2001



	Moderate	High
Model 2	0.661	0.624
Model 3	0.696	0.695
Model 4	0.696	0.695

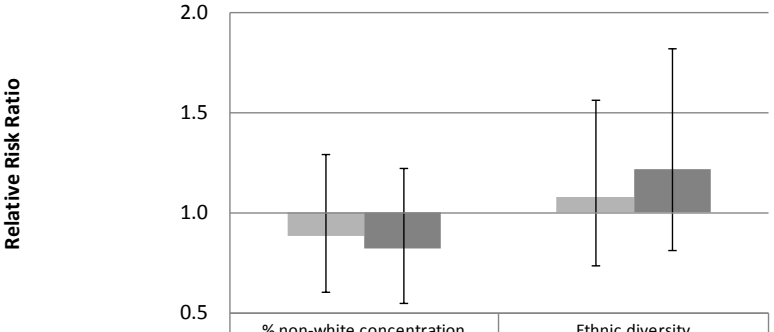
1. Relative risk ratios and 95 % confidence intervals for tertiles 2 (moderately deprived) and 3 (highly deprived) compared to the tertile 1 (affluent). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).
2. Models were adjusted as follows:

   Model 2: all individual characteristics, region of residence, plus the Townsend deprivation index for CAS wards

   Model 3: as Model 2, plus the percent non-White concentration for CAS wards

   Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards
3. Created by the author using the ONS LS

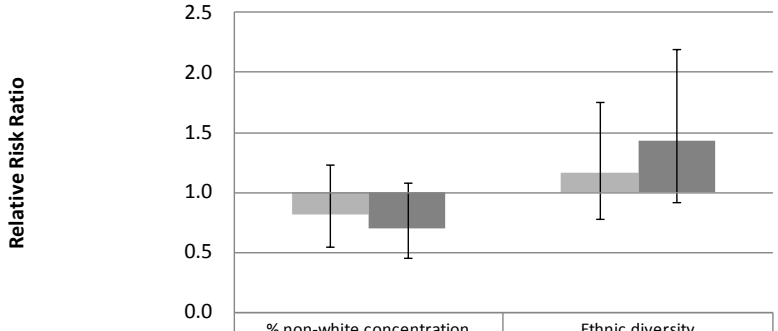
Figure 5-23: The effect of non-White concentration and ethnic diversity on the likelihood of unemployed women in 1991 becoming employed by 2001



	% non-white concentration	Ethnic diversity
Moderate concentration / diversity	0.884	1.078
High concentration / Low Diversity	0.821	1.219

1. Relative risk ratios and 95 % confidence intervals for tertiles 2 (moderately non-White concentrated or moderately diverse) and 3 (highly non-White concentrated or least diverse) compared to the tertile 1 (least non-White concentrated or most ethnically diverse). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).
2. Created by the author using the ONS LS

Figure 5-24: The effect of non-White concentration and ethnic diversity on the likelihood of unemployed women in 1991 becoming homemakers by 2001



	% non-white concentration	Ethnic diversity
Moderate concentration / diversity	0.820	1.169
High concentration / Low Diversity	0.701	1.426

1. Relative risk ratios and 95 % confidence intervals for tertiles 2 (moderately non-White concentrated or moderately diverse) and 3 (highly non-White concentrated or least diverse) compared to the tertile 1 (least non-White concentrated or most ethnically diverse). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).
2. Created by the author using the ONS LS

Summary of Study 4

This study has showed that there are no significant ethnic inequalities in the likelihood of unemployed women in becoming employed or economically inactive for homemaking reasons in England between 1991 and 2001. However, as indicated at the beginning, the sample size in this study was low. Of 3505 women in 1991 who were unemployed, only 7.5% remained unemployed by 2001.

All relative risk ratios in this study were likely to be sensitive to the small numbers of women who remained unemployed as they were the base category in the regression model. This meant that the regression modelling was less stable than in the other studies in this chapter, which used far larger sample sizes. As such, although no significant ethnic inequalities were found, I do not think the evidence in this study can rule out the possibility of ethnic inequalities in unemployed women finding employment or moving into homemaking existing.

Pakistani women appeared less likely to become employed, and more likely to become unemployed, than White women. Indian, Black Caribbean, Black African and Chinese women seemed less likely to become homemakers than White women. A lack of model power also makes the regional inequalities and effects of neighbourhood less reliable, although it was found that women in more deprived neighbourhoods were consistently less likely to become employed or homemakers.

5.4.5 Study 5: Homemaking to employment or unemployment among women

Table 5-6 shows the percentage change in economic activity among women who were economically inactive due to homemaking reasons in 1991. By 2001, the percent who moved

into employment, or unemployment, and the univariate association with each independent variable is showed. The 'Total' column indicates the total number of homemaking women in the 1991 sample, with the % column identifying the percentage of those women who experienced social mobility (transition to a) employment or b) unemployment) between 1991 and 2001. Relative Risk Ratios (RRR) indicated the statistical likelihood that a homemaking woman in 1991 will become either a) employed or b) unemployed by 2001, compared to the likelihood of remaining a homemaker. Relative Risk Ratios are derived from univariate multinomial logistic regression models, adjusting for the clustering of individuals within wards. 95% confidence intervals indicate the reliability of the Relative Risk Ratios and p-values suggest the level of significance, with $p<0.05$ considered statistically significant and highlighted in bold.

59.96% of White women homemakers in 1991 became employed by 2001, in comparison to 4.14% who became unemployed. Pakistani (15.13%) and Bangladeshi (9.39%) women were significantly less likely to become employed. Pakistani (3.73%) and Bangladeshi (3.76%) women were also significantly less likely to become unemployed than White women. In comparison, Black Caribbean (8.84%) women were 2.09 times more likely and Black African (BLANKED %) women were 2.61 times more likely to become unemployed than White women. 58.28% of homemaking women aged 18 -29 became employed, compared with 5.81% who became unemployed. In comparison, women aged 30-39 were 1.3 times (65.26%) significantly more likely to become employed than 18-29 year olds. On the other hand, women aged 40-49 were significantly less likely to become employed (44.29%). Moreover, older women were significantly less likely to become unemployed (30-39, 3.77%; 40-49, 2.36%).

57.98% of women homemakers who were in couples in 1991 and 2001 became employed by 2001. Only 2.4% became unemployed. In terms of women homemakers who were single in both 1991 and 2001, there was no difference in the employment rate, but these women were 3.65 times more likely to become unemployed (8.51%) than those in couples. Women who became single

(61.37%), or became part of a couple (60.45%) were significantly more likely to become employed or unemployed than those who were in couples throughout.

43.13% of women homemakers with no qualifications in 1991 and 2001 became employed by 2001. 4.22% became unemployed. Women with qualifications throughout were 3.25 times more likely to become employed (70.9%) and women who gained qualifications by 2001 were 2.68 times more likely to become employed (65.7%). Interestingly, women who gained qualifications were also 1.82 times more likely to become unemployed (1.82%) than women with no qualifications.

61.79% of women homemakers who were also homeowners became employed by 2001, though only 2.69% became unemployed. This is in comparison to homemaking women in privately rented accommodation, who were less likely to become employed (55.67%), but 2.31 times more likely to become unemployed (6.56%). Homemaking women in socially rented tenure were similarly less likely to become employed (49.92%) and 2.17 times more likely to become unemployed (7.04%).

Migrant generation appeared to significantly affect whether a homemaking woman in 1991 would become employed or unemployed by 2001. 59.96% of homemaking women became employed, compared to 4.19% who became unemployed. On the other hand, homemaking women who were born overseas were significantly less likely to become employed (42.74%) and also less likely to become unemployed (4.31%). Homemaking women who moved within the UK between 1991 and 2001 were 1.17 times more likely (59.16%) to become employed compared to those who did not move (56.59%). Meanwhile, homemaking women that moved were also 1.71 times more likely (5.06%) to become unemployed compared to those who did not move (3.32%).

Homemaking women in more deprived neighbourhoods were significantly less likely to become employed (49.86%) compared to those in more affluent areas (63.59%). In comparison,

homemaking women in more deprived neighbourhoods were 1.66 times more likely (5.73%) to become unemployed than those in more affluent areas (2.63%). Homemaking women living in less ethnically diverse neighbourhoods were 1.45 times more likely to become employed (60.99%) than those in more diverse areas (51.65%). Ethnic diversity was not associated with any differences between homemaking women who became unemployed. Similarly, homemaking women in more non-White concentrated neighbourhoods were significantly less likely to become employed (51.65%) than those in less non-White concentrated areas (60.98%). Again, non-White concentration was not associated with any difference in the likelihood of homemaking women becoming unemployed.

Some significant regional inequalities were found. Compared to homemaking women in the South East (58.03%), those in the East Midlands and South West were 1.15 (60.63%) and 1.3 (64.27%) times more likely to become employed. In comparison, 3.79% of homemaking women in the South East became unemployed, but those in Yorkshire were 1.34 times more likely to become unemployed (5.3%).

Table 5.6: Univariate associations between the likelihood of homemaking women in 1991 becoming employed or unemployed by 2001, for each independent variable

	Homemaker total	**Employed**				**Unemployed**				
		%	**RRR**	**95 % CI**		**p**	**%**	**RRR**	**95 % CI**		**p**
Ethnic Group											
White	17175	59.96	ref				4.14	ref			
Indian	497	55.73	0.85	0.69	1.03	0.101	5.03	1.12	0.71	1.76	0.621
Pakistani	509	15.13	**0.11**	**0.09**	**0.14**	**<0.001**	3.73	**0.40**	**0.25**	**0.64**	**<0.001**
Bangladeshi	213	9.39	**0.07**	**0.04**	**0.11**	**<0.001**	3.76	**0.38**	**0.19**	**0.76**	**0.006**
Black Caribbean	147	54.42	0.88	0.62	1.24	0.453	8.84	**2.09**	**1.16**	**3.77**	**0.014**
Black African	53	49.06	0.75	0.41	1.36	0.344	BLANKED	**2.61**	**1.08**	**6.30**	**0.033**
Chinese	75	50.67	0.69	0.43	1.11	0.125	BLANKED	1.05	0.37	2.99	0.921
Other	295	55.25	0.81	0.64	1.02	0.078	3.73	0.80	0.43	1.48	0.475
Total	18964	57.89					4.20				
Age Group											

18 to 29	7008	58.28	ref				5.81	ref			
30 to 39	7630	65.26	**1.30**	**1.21**	**1.39**	**<0.001**	3.77	**0.76**	**0.64**	**0.89**	**0.001**
40 to 49	4326	44.29	**0.51**	**0.47**	**0.55**	**<0.001**	2.36	**0.28**	**0.22**	**0.35**	**<0.001**
Total	18964	57.89					4.20				
Couple Status											
Couple: 1991 & 2001	11986	57.98	ref				2.40	ref			
Single: 1991 & 2001	3090	53.56	0.97	0.89	1.05	0.417	8.51	**3.65**	**3.06**	**4.35**	**<0.001**
Couple: 1991; Single: 2001	2682	61.37	**1.33**	**1.21**	**1.46**	**<0.001**	6.90	**3.63**	**2.98**	**4.42**	**<0.001**
Single: 1991; Couple: 2001	1206	60.45	**1.21**	**1.07**	**1.37**	**0.003**	5.06	**2.45**	**1.83**	**3.28**	**<0.001**
Total	18964	57.89					4.20				
Qualifications											
None at all	6867	43.13	ref				4.22	ref			
Qualifications: 1991 & 2001	1347	70.90	**3.25**	**2.84**	**3.72**	**<0.001**	2.52	1.18	0.82	1.71	0.378
None: 1991; Gained: 2001	10745	65.70	**2.68**	**2.51**	**2.86**	**<0.001**	4.40	**1.82**	**1.56**	**2.13**	**<0.001**
Total	18965	57.89					4.20				
Household Tenure											
Owner	12304	61.79	ref				2.69	ref			
Private renter	900	55.67	**0.84**	**0.73**	**0.97**	**0.020**	6.56	**2.31**	**1.70**	**3.13**	**<0.001**
Social renter	5707	49.92	**0.67**	**0.62**	**0.71**	**<0.001**	7.04	**2.17**	**1.86**	**2.54**	**<0.001**
Total	18964	57.89					4.20				
Migrant Generation											
Born in the UK	16692	59.96	ref				4.19	ref			
Born overseas	2272	42.74	**0.48**	**0.43**	**0.54**	**<0.001**	4.31	**0.69**	**0.56**	**0.87**	**0.001**
Total	18964	57.89					4.20				
Internal Migrant											
Non-mover	9342	56.59	ref				3.32	ref			
Mover	9619	59.16	**1.17**	**1.10**	**1.25**	**<0.001**	5.06	**1.71**	**1.46**	**1.99**	**<0.001**
Total	18964	57.89					4.20				
Deprivation											
Low	5770	63.59	ref				2.63	ref			
Moderate	5993	61.91	0.96	0.89	1.04	0.328	3.89	**1.46**	**1.18**	**1.80**	**<0.001**
High	7064	49.86	**0.60**	**0.55**	**0.65**	**<0.001**	5.73	**1.66**	**1.36**	**2.01**	**<0.001**
Total	18964	57.89					4.20				
Ethnic diversity											
High	6312	51.65	ref				4.91	ref			

Moderate	6148	61.13	**1.48**	**1.36**	**1.60**	**<0.001**	4.03	1.02	0.86	1.23	0.795
Low	6367	60.99	**1.45**	**1.34**	**1.57**	**<0.001**	3.64	0.91	0.76	1.09	0.313
Total	18964	57.89					4.20				
% Non-White											
Low	6371	60.98	ref				3.64	ref			
Moderate	6148	61.13	1.02	0.94	1.10	0.647	4.03	1.12	0.93	1.36	0.223
High	6308	51.65	**0.69**	**0.64**	**0.75**	**<0.001**	4.91	1.10	0.92	1.32	0.304
Total	18964	57.89					4.20				
Standard region											
North	1261	53.77	**0.86**	**0.76**	**0.98**	**0.024**	5.15	1.27	0.95	1.70	0.102
Yorkshire	2056	55.40	0.93	0.83	1.04	0.179	5.30	**1.34**	**1.05**	**1.71**	**0.018**
East Midlands	1628	60.63	**1.15**	**1.02**	**1.30**	**0.024**	4.36	1.25	0.94	1.68	0.127
East Anglia	783	61.05	1.11	0.94	1.30	0.207	2.81	0.79	0.49	1.25	0.313
East Anglia	7152	58.03	ref				3.79	ref			
South West	1643	64.27	**1.30**	**1.15**	**1.47**	**<0.001**	3.16	0.99	0.72	1.36	0.947
West Midlands	2158	54.82	0.89	0.79	1.02	0.087	4.87	1.21	0.96	1.52	0.107
North West	2283	57.29	0.99	0.89	1.10	0.818	4.47	1.18	0.93	1.51	0.182
Total	18964	57.89					4.20				

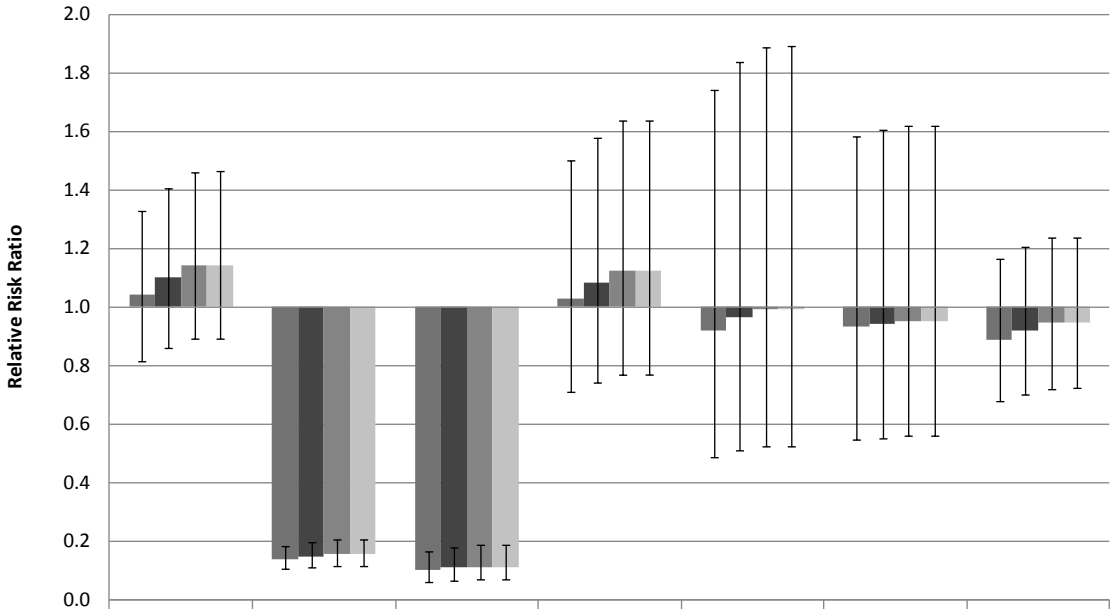
Source: ONS LS, created by the Author

Figure 5-25 shows the ethnic inequalities in chances of homemaking women becoming employed that were seen in the univariate results. This time, adjustment is made for individual factors, region, deprivation and ethnic diversity at different stages of the modelling process. After controlling for individual factors and region, only Pakistani and Bangladeshi women were significantly different from White women, with lower chances of becoming employed. Indian and Black Caribbean appeared to have better chances, though not significantly so. Controlling for deprivation, and then non-White concentration or ethnic diversity, did not change the direction of these inequalities or the significance. Pakistani and Bangladeshi women homemakers were significantly less likely than White women to become employed, after taking into account individual factors, region, and neighbourhood characteristics.

Figure 5-26 shows the same as Figure 5-25, but for the likelihood of homemaking women becoming unemployed. After controlling for individual factors and region, Indian women

homemakers appeared significantly at risk of becoming unemployed compared to White women. Black Caribbean, Black African and Chinese women were also more likely, but these ethnic inequalities were not statistically significant. Pakistani and Bangladeshi women were less likely, but again, not statistically significant. After taking into account neighbourhood characteristics, the ethnic inequalities stayed much the same, though the significance of the lower chances among Indian homemakers dropped a little (but remained significantly different from White homemaking women).

Figure 5-25: Ethnic inequalities in the likelihood of homemaking women in 1991 becoming employed by 2001 (Source: created by the Author using ONS LS data)



	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Chinese	Other
Model 1	1.041	0.139	0.102	1.032	0.922	0.932	0.890
Model 2	1.100	0.149	0.109	1.083	0.968	0.943	0.921
Model 3	1.144	0.157	0.113	1.124	0.995	0.953	0.946
Model 4	1.144	0.157	0.113	1.125	0.995	0.953	0.947

1. Odds Ratios and 95 % confidence intervals for each ethnic group compared to the White group. 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).
2. Models were adjusted as follows:

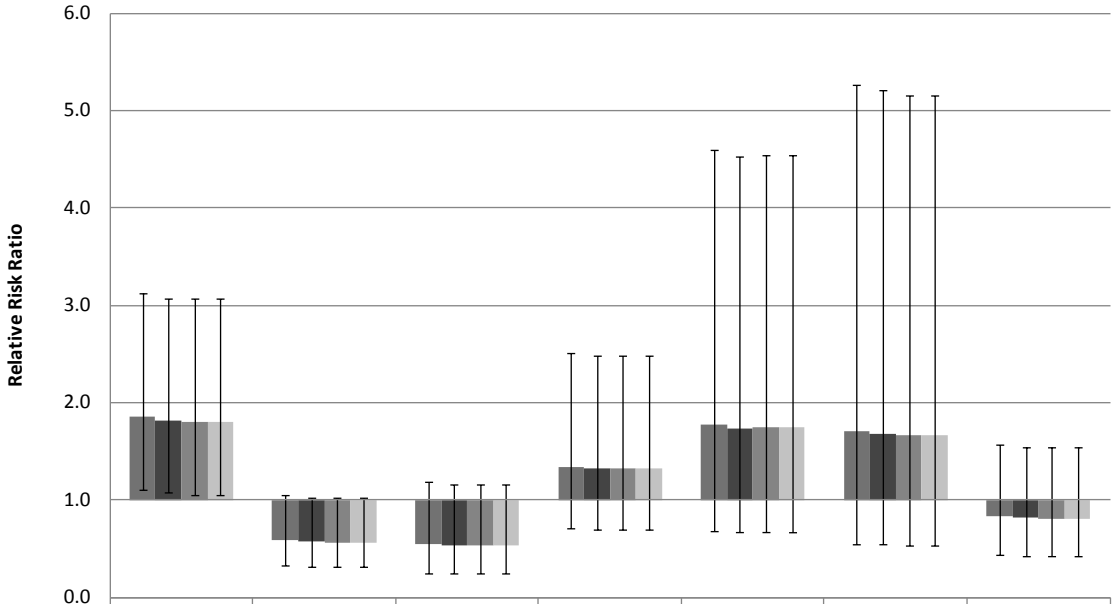
   Model 1: all individual characteristics, plus region of residence

   Model 2: as Model 1, plus the Townsend deprivation index for CAS wards

   Model 3: as Model 2, plus the percent non-White concentration for CAS wards

Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 5-26: Ethnic inequalities in the likelihood of homemaking women in 1991 becoming unemployed by 2001 (Source: created by the Author from ONS LS data)



	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Chinese	Other
Model 1	1.857	0.590	0.549	1.342	1.772	1.703	0.829
Model 2	1.814	0.575	0.538	1.321	1.740	1.685	0.815
Model 3	1.800	0.568	0.536	1.321	1.742	1.664	0.811
Model 4	1.801	0.569	0.536	1.321	1.743	1.664	0.811

1. Odds Ratios and 95 % confidence intervals for each ethnic group compared to the White group. 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).
2. Models were adjusted as follows:

   Model 1: all individual characteristics, plus region of residence

   Model 2: as Model 1, plus the Townsend deprivation index for CAS wards

   Model 3: as Model 2, plus the percent non-White concentration for CAS wards

   Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 5-27 shows the regional inequalities in homemaking women becoming employed by 2001, after taking into account individual factors and neighbourhood characteristics (deprivation and non-White concentration). The South East is coloured orange. Regions with higher percentages

of homemaking women who became employed are darker. Regions with smaller percentages are lighter. Regions with thick boundaries had percentages that were significantly different from the South East ($p<0.05$). Only the East Midlands was significantly different to the South East, with 60.63% of homemaking women becoming employed compared to 58.03%. Homemaking women in the north were generally less likely to become employed compared to the South East, and the southern regions more generally (another north-south gradient).

More significant regional inequalities were observed for homemaking women and their chances of becoming unemployed (Figure 5-28). Again, a north-south gradient was seen, with homemaking women in Yorkshire (5.3%) and the West Midlands (4.87%) significantly more likely to become unemployed than those in the South East (3.79%). Homemaking women in the north were generally more likely to become unemployed than those in the South East, and the southern regions more generally.

Figure 5-29 shows the effect of deprivation on homemaking women's chances of becoming employed, controlling for individual factors and region, non-White concentration and ethnic diversity at different stages of the modelling process. After controlling for individual factors and region, deprivation appeared to have a significantly negative effect on the chances of becoming employed. After taking into account non-White concentration, or ethnic diversity, the significance and size of the deprivation effect reduced, but remained statistically significant.

Figure 5-30 shows the same as Figure 5-29, but for the chances of homemaking women becoming unemployed. Homemaking women in more deprived neighbourhoods appeared to be more likely to become unemployed compared to those in more affluent areas, but this effect was not significant.

Figure 5-31 shows the effect of non-White concentration and ethnic diversity on women homemakers chances of becoming employed, after taking into account individual factors, region,

and neighbourhood deprivation. Homemaking women in more non-White concentrated neighbourhoods, or less diverse areas, were significantly more likely to become employed than those in less non-White concentrated or more diverse neighbourhoods.

Figure 5-32 shows the same as Figure 5-31, but in terms of the likelihood that homemaking women would become unemployed. Non-White concentration and ethnic diversity appeared to have no consistent or significant effect on the chances of becoming unemployed.

Figure 5-27: The likelihood of homemaking women in 1991 becoming employed by 2001, by 1991 Standard Regions

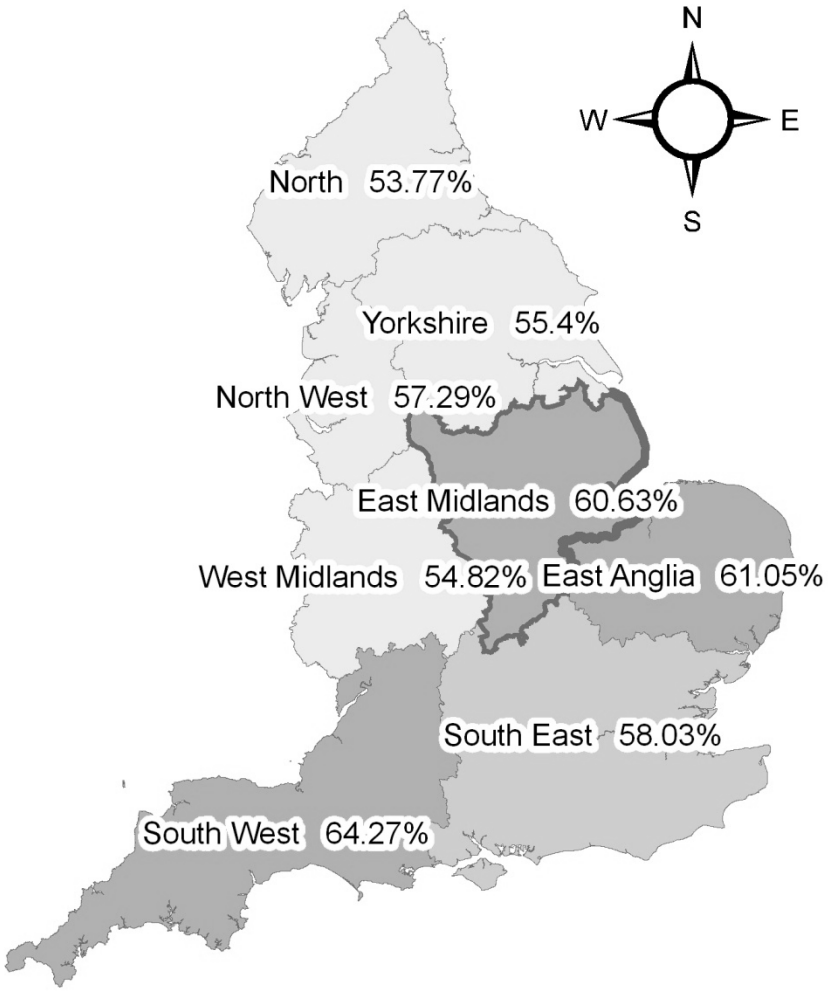
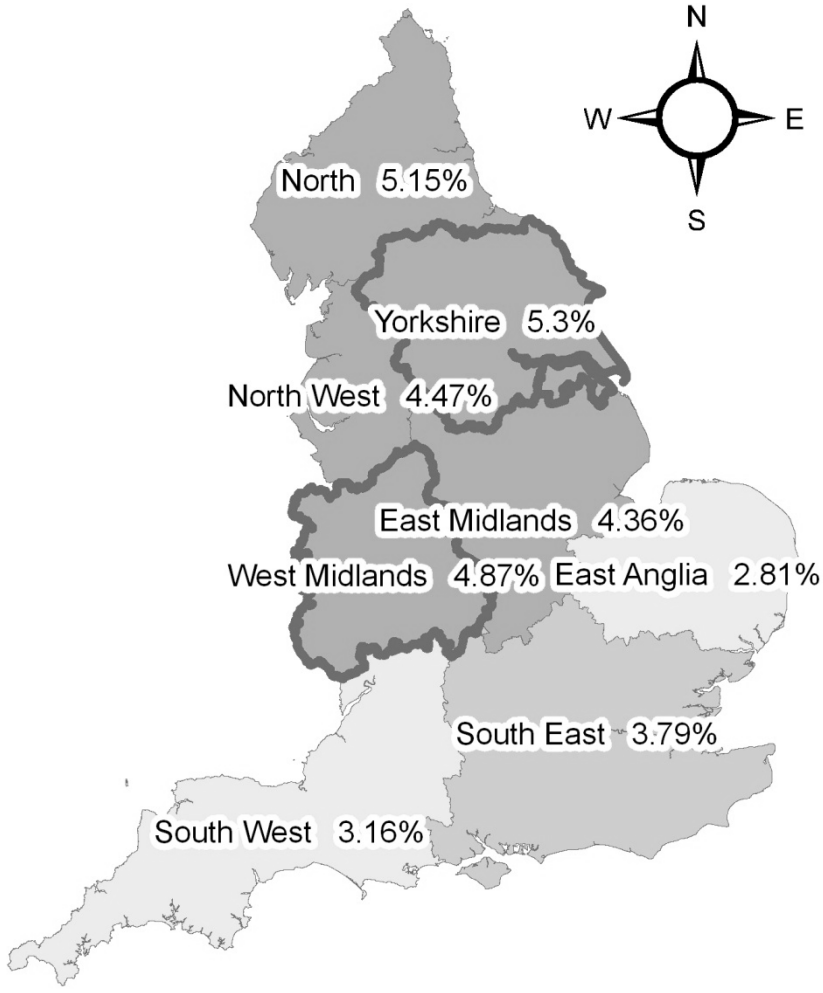
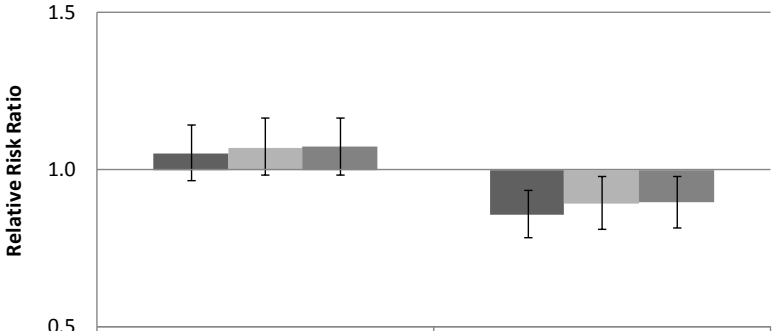


Figure 5-28: The likelihood of homemaking women in 1991 becoming unemployed by 2001, by 1991 Standard Regions



Reference | Higher than reference | Lower than reference | Bold outline = significantly different from reference (P<0.05)

Figure 5-29: Effect of deprivation on the likelihood of homemaking women in 1991 becoming employed by 2001



	Moderate	High
Model 2	1.053	0.857
Model 3	1.071	0.894
Model 4	1.071	0.894

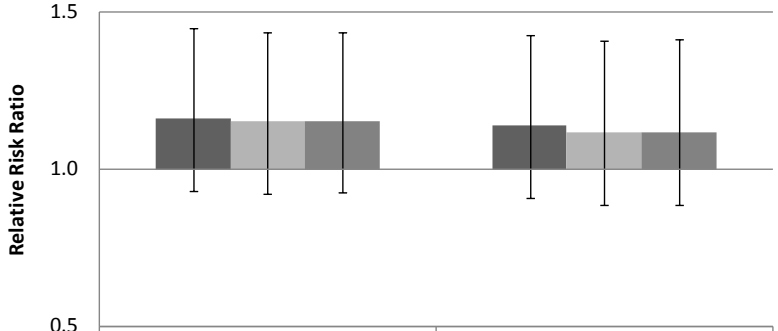
1. Odds Ratios and 95 % confidence intervals for tertiles 2 (moderately deprived) and 3 (highly deprived) compared to the tertile 1 (affluent). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).
2. Models were adjusted as follows:

   Model 2: all individual characteristics, region of residence, plus the Townsend deprivation index for CAS wards

   Model 3: as Model 2, plus the percent non-White concentration for CAS wards

   Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards
3. Created by the author using the ONS LS

Figure 5-30: Effect of deprivation on the likelihood of homemaking women in 1991 becoming unemployed by 2001



	Moderate	High
Model 2	1.163	1.138
Model 3	1.153	1.119
Model 4	1.153	1.120

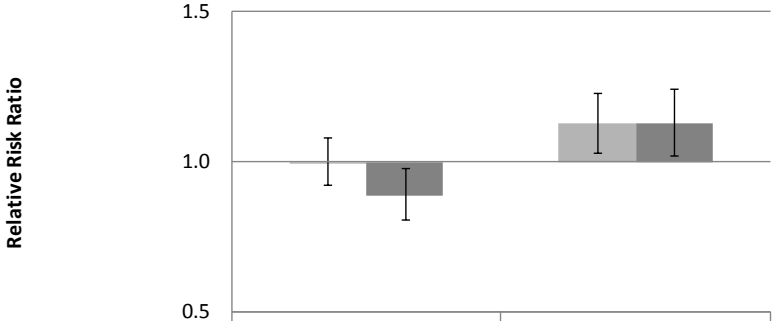
1. Odds Ratios and 95 % confidence intervals for tertiles 2 (moderately deprived) and 3 (highly deprived) compared to the tertile 1 (affluent). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).
2. Models were adjusted as follows:

   Model 2: all individual characteristics, region of residence, plus the Townsend deprivation index for CAS wards

   Model 3: as Model 2, plus the percent non-White concentration for CAS wards

   Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards
3. Created by the author using the ONS LS

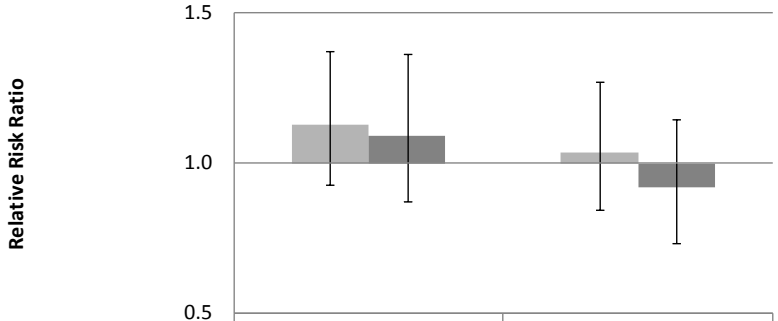
Figure 5-31: The effect of non-White concentration and ethnic diversity on the likelihood of homemaking women in 1991 becoming employed by 2001 (Created by the author using the ONS LS)



	% non-white concentration	Ethnic diversity
Moderate concentration / diversity	1.000	1.126
High concentration / Low Diversity	0.889	1.127

1. Odds Ratios and 95 % confidence intervals for tertiles 2 (moderately non-White concentrated or moderately diverse) and 3 (highly non-White concentrated or least diverse) compared to the tertile 1 (least non-White concentrated or most ethnically diverse). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Figure 5-32: The effect of non-White concentration and ethnic diversity on the likelihood of homemaking women in 1991 becoming unemployed by 2001 (Created by the author using the ONS LS)



	% non-white concentration	Ethnic diversity
Moderate concentration / diversity	1.129	1.036
High concentration / Low Diversity	1.092	0.918

1. Odds Ratios and 95 % confidence intervals for tertiles 2 (moderately non-White concentrated or moderately diverse) and 3 (highly non-White concentrated or least diverse) compared to the tertile 1 (least non-White concentrated or most ethnically diverse). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Summary of Study 5

This study has showed that there were ethnic inequalities in the likelihood of women homemakers becoming employed or unemployed, which are not explained by individual factors, region, or neighbourhood characteristics. Pakistani and Bangladeshi women were significantly less likely than White women to move from homemaking to employment. In comparison, Indian women were significantly more likely to move from homemaking to unemployment than White women.

Regionally, a north-south gradient was observed in the likelihood of homemaking women becoming employed or unemployed. However, compared to the South East, only a few regions had significantly different rates of social mobility. Women in the East Midlands were significantly more likely to become employed compared to those in the South East. Women in Yorkshire and the West Midlands were significantly more likely to become unemployed compared to those in the South East.

Deprivation had a significant negative effect on the chances of becoming employed from a homemaking position, after controlling for individual factors, region, and neighbourhood ethnic diversity. Deprivation also had a non-significant positive effect on the chances of homemaking women becoming unemployed. Women homemakers in more non-White concentrated and less diverse neighbourhoods were increasingly more likely to become employed. In comparison, the ethnic diversity of neighbourhoods had no effect on the moves from homemaking to unemployment.

5.5 Discussion

5.5.1 Main findings

This chapter investigated ethnic inequalities, regional inequalities and neighbourhood effects on social mobility between 1991 and 2001, as defined by transitions in economic activity and inactivity. I posed eight questions at the beginning of the chapter. In this section, I outline answers to each of these questions using the results of the five studies presented.

1) Are ethnic minorities more likely to become unemployed than the White ethnic group?

Studies 1 and 3 provided evidence to suggest that men and women from some ethnic minority groups were indeed more likely to move from employment to unemployment than their White peers. Among men, Indians, Black Caribbeans, Pakistanis and Bangladeshis were significantly at more risk than Whites. For women, Indians, Pakistanis and Bangladeshis were significantly more likely than the White ethnic group.

2) Are ethnic minorities less likely to become employed than the White ethnic group?

Studies 2, 4 and 5 provided mixed evidence for this question. On one hand, there were significant ethnic inequalities among men. Pakistani men were significantly less likely to become employed than White men. Most other ethnic minority men were less likely to become employed than White men, though not significantly after taking into account individual factors, region, and neighbourhood characteristics. In comparison, there were no significant ethnic inequalities among unemployed women in their likelihood of

becoming employed. However, unlike the large sample size available for men, the sample size for women was much smaller and may produce less reliable results as a consequence. Had sample sizes been larger, it may be that some of the ethnic inequalities would be significant, particularly the reduced likelihood of Pakistani women finding employment which was only marginally not statistically significant. I did find that Pakistani and Bangladeshi women homemakers were significantly less likely to become employed compared to White women homemakers.

3) Are ethnic minority women more likely to become economically inactive for homemaking reasons than White women?

Studies 3 and 4 showed mixed results, with ethnic inequalities in the likelihood of becoming homemakers depending on whether a woman was employed or unemployed in 1991. For example, study 3 showed Indian and Black Caribbean women who were employed in 1991 were significantly less likely than White women to become homemakers by 2001. In comparison, Bangladeshi women who were employed in 1991 were less likely to become homemakers than White women.

Ethnic inequalities in the likelihood of becoming homemakers among women who were unemployed in 1991 tended not to be statistically significant. This is most likely because small sample sizes reduced the power of the statistical model to detect significant associations. However, it did seem that Pakistani women were more likely to become unemployed than White women. Indian, Black Caribbean, Black African and Chinese women seemed less likely to become homemakers by comparison.

Evidence from Study 5 is also relevant for this question, as it provides information on whether there are ethnic inequalities in the likelihood of remaining in homemaking, rather than moving to employment or unemployment. For example, Pakistani and Bangladeshi women were found to be significantly more likely than White women to remain in homemaking, instead of moving into employment. In comparison,

White women were significantly more likely to remain in homemaking than Indian women, who were more likely to become unemployed.

4) Is neighbourhood deprivation positively associated with the likelihood of becoming unemployed?

Study 1 showed that neighbourhood deprivation was significantly associated with the risk of becoming unemployed among men who were employed in 1991. Study 3 showed that employed women living in more deprived neighbourhoods were significantly more likely to become unemployed.

5) Is neighbourhood deprivation negatively associated with the likelihood of becoming employed?

Study 2 showed that neighbourhood deprivation was significantly associated with a reduced likelihood of becoming employed for men who were unemployed in 1991. Study 4 showed a similar effect of neighbourhood deprivation for the chances of unemployed women to find employment, though this was not a significant association (possibly due to the small sample size). Study 5 showed that homemaking women living in more deprived neighbourhoods were significantly less likely to become employed than those who were in more affluent areas.

6) What is the nature of the relationship between transitions in economic activity/inactivity and neighbourhood ethnic diversity?

In almost all studies in this chapter, the non-White concentration and the ethnic diversity of neighbourhoods was not significantly associated with transitions in economic activity and inactivity. I

found a significant association only for employed women in study 3. Women in less non-White concentrated and less ethnically diverse neighbourhoods were more likely to become unemployed.

7) To what extent are any of the ethnic inequalities in social mobility explained by effects of neighbourhood deprivation and ethnic diversity?

In all of the studies featured in this chapter, the ethnic inequalities in social mobility that remained significant after controlling for individual factors and region tended to remain significant and relatively unaffected by adjustment for neighbourhood characteristics.

8) Are there regional inequalities in social mobility, independent of any individual and neighbourhood effects?

A consistent result observed in almost every study within this chapter was a north-south gradient in social mobility. Study 1 showed that men in the north were particularly likely to become unemployed compared to those in the South East, and the southern regions more generally. Study 2 showed significant regional variation in the risk of becoming unemployed. Men in the North especially were less likely to find employment than those who lived in the South East. Study 3 showed that women in the North and North West were less likely to become unemployed than those in the South East. It was also the case that women in the South East were more likely to become homemakers than those in almost any other region. Study 4 showed no significant regional inequalities, though women in the north were less likely to become employed. Study 5 showed that women homemakers in northern regions were more likely to become unemployed and less likely to become employed than those in the south.

5.5.2 Interpretation

My study reveals that people in deprived urban areas of England in 1991 were more likely to become unemployed, and less likely to find employment ten years later, even after controlling for important individual characteristics. However, longitudinal research of social mobility at the neighbourhood scale is rare. Different studies often use different outcome variables, definitions and time periods, which makes drawing comparisons between my study and others difficult. Generally, my results are in line with longitudinal evidence exploring neighbourhood effects on labour market transitions in Scotland (van Ham and Manley, 2010), the Netherlands (Musterd et al., 2003) and Sweden (Musterd and Andersson, 2006).

My study extends these findings not only geographically, but also conceptually, considering ethnic diversity as another potentially important neighbourhood characteristic for social mobility. The contact (Allport, 1954) hypothesis suggested that ethnic diversity can promote inter-ethnic relations and local social capital, which would be good for social mobility. On the other hand, the conflict (Blumer, 1958) and constrict (Putnam, 2007) hypotheses were concerned with inter-ethnic tension, competition, and the decline of bonding and bridging social capital, which would be bad for social mobility. I did not find any consistent evidence that the ethnic diversity of neighbourhoods had any significant effect (good or bad) on social mobility. For policymakers, this suggests that deprived neighbourhoods, not those noted for their ethnic diversity, should be the targets for interventions designed to improve social mobility.

Ethnic inequalities in social mobility remained unaffected when controlling for neighbourhood ethnic diversity and deprivation. This rejects my initial hypothesis, which was the suggestion that ethnic inequalities in economic activity are the result of ethnic minorities often being geographically concentrated into some of the poorest neighbourhoods in England. As no previous study has simultaneously explored ethnic inequalities in social mobility and whether neighbourhood deprivation and diversity is important in England, my study enhances the literature in this way.

I extend the existing literature on ethnic inequalities in economic activity longitudinally, adding support for previous findings which have showed that ethnic minorities face persistent disadvantage in the labour market, independent of other important factors like educational qualification, marital status, age, gender, etc (Li and Heath, 2008, Heath et al., 2000b, Modood et al., 1997, Berthoud, 2000, Blackaby et al., 2002). My study found, in particular, that ethnic minorities (regardless of gender) living in urban England in 1991 were significantly more likely to become unemployed and less likely to find employment ten years later (especially for South Asian groups), which supports previous research of cross-sectional design (e.g. (Simpson et al., 2009)). These findings suggest that more longitudinal research (using experimental data if possible), over longer time periods, with more frequent surveys and more detailed information on ethnicity and economic activity are required, if we are to really find out why ethnic minorities are persistently disadvantaged in the labour market.

I am also able to support research which has showed that differences between men and women in economic activity exist, with a substantial number of women economically inactive for homemaking reasons (Lindley et al., 2006, Dale et al., 2006). Homemaking was a statistically significant status for women in 1991 and 2001. Among employed women, Black Caribbean and Indian women were less likely to become homemakers than White women, whereas Bangladeshi women were significantly more likely. Homemaking was especially significant for Pakistani and Bangladeshi women, who were more likely to remain in homemaking between 1991 and 2001 than White women, who were more likely to enter employment. In comparison, Indian women leaving homemaking to enter the labour market were more likely to become unemployed than White women making the same transition, independent of education, age, and other important factors influencing employment chances. These findings warrant further research beyond the capabilities of the ONS LS data into what determines ethnic inequalities in women's participation and ability to succeed in the labour market after spending a period of time inactive for homemaking reasons.

Finally, this study also finds evidence of regional inequalities in social mobility. Previous research (e.g. (Simpson et al., 2009)) has showed the existence of a north-south gradient in life chances. My study finds similar evidence, with people in the north often being more likely to become unemployed and less likely to find employment compared to individuals living in the southern regions. These inequalities were significant even after taking into account important individual factors and the types of neighbourhoods in which people lived. This suggests that if policymakers are to tackle social mobility, focusing on individuals and small scale geographies without looking at the regional picture may result in less cost-effective policies.

5.5.3 Strengths and weaknesses

This study has several strengths, but also some weaknesses. In terms of strengths, overall sample sizes were small only for one of the five dependent variables (unemployed women in 1991). This was clearly very important as in some cases, the percentage of individuals who were socially mobile between 1991 and 2001 was as low as 3% for men and 1.8% for women (both statistics representing the percent who moved from employment to unemployment). The overall sample size for unemployed women stood at a reasonable 3505, but only 7.5% remaining unemployed. When examining the ethnic inequalities, 3010 of the 3505 unemployed women were in the White group. Small numbers in some ethnic minority groups and the very high rate of social mobility reduced the likelihood that regression models would detect statistically significant associations. Unsurprisingly, the most significant associations found were among the men and women who were employed in 1991, for whom sample sizes were largest at 73,215 and 57,548 respectively. Therefore, in this study, sample size was mostly advantageous, but with some variation by each dependent variable.

A second advantage of this study was the range of dependent variables used. Five dependent variables, three of which were multinomial (those for women), is a greater range than usually presented in previous research. In particular, the consideration of economic inactivity for homemaking reasons as an alternative status among women, in addition to employment and unemployment, is something that does not always receive much attention in the literature that tends to focus on the employment and unemployment dichotomy. It could be argued that the classification I have used is still a little too general, as there are likely to be important differences in social mobility between full-time, part-time and self employment. These differences may be especially significant for particular ethnic groups which have high proportions in certain sectors (e.g. the Chinese in restaurants) and for gender differences (women are often more likely to work in part-time occupations). Moreover, as discussed earlier and as I will explore in more detail in later chapters, different social classes of occupation may also be important for ethnic inequalities in social mobility too. Therefore, the range of dependent variables used is greater than before, but the results must be interpreted conservatively, as it may be that more striking ethnic inequalities in social mobility exist than have been reported here.

A final major advantage of this study is the longitudinal design and the number of independent variables used. The longitudinal design helps to order exposure with outcome. Neighbourhood characteristics were measured in 1991, along with an individual's economic activity and a range of other important factors, such as their age, educational qualifications, marital status, etc. The 'lagged' effect of neighbourhood was then analysed against the likelihood of a change in economic activity between 1991 and 2001, taking into account any changes in educational qualifications and marital status over time (both of which I showed to be important determinants of social mobility). This ordering of exposure before outcome helps to avoid the problem of reverse causality. The large number of independent variables also reduces the problem of selection effects.

One downside is that the types of neighbourhoods in which people lived in 1991 were not randomly assigned, and neither were the regions of residence. The problem is when a factor or preference that

determines what sort of neighbourhood a person lives in is also related to their chances for social mobility. If this factor is unmeasured, then the study will suffer a form of omitted variables bias (or selection bias), resulting in exaggerated or spurious neighbourhood effects. This is a common problem with no straightforward solution, other than a resort to experimental data, which was not available. Therefore, the longitudinal design of this study is more advantageous than a cross-sectional one, but the lack of randomisation and potential exaggeration of the effect of neighbourhood deprivation must be acknowledged as a limitation.

5.6 Conclusion

This study has enhanced our understanding of ethnic inequalities in social mobility (defined by transitions in economic activity/inactivity) at the neighbourhood scale by showing, in terms of transitions in economic activity through time, that ethnic inequalities persist even after controlling for neighbourhood deprivation and measures of ethnic diversity. Neighbourhood deprivation was an important determinant of some measures of social mobility, but ethnic diversity was not. Significant regional inequalities in social mobility exist, independent of individual and neighbourhood factors. Further research is required on variation in social mobility within those individuals who were employed (i.e. by social class) and to investigate variation in life chances within ethnic groups.

6. Are ethnic inequalities in social class mobility linked to neighbourhood deprivation and ethnic diversity?

6.1 Introduction

This chapter investigates ethnic inequalities, regional inequalities and neighbourhood effects on social mobility between 1991 and 2001. The conceptual background for this chapter is similar to that explained in chapter five. Ethnic inequalities (or 'penalties') in social mobility persist after taking into account individual and household characteristics. However, most studies have not considered the potential for neighbourhood effects. I hypothesise that the ethnic inequalities in social mobility are linked to neighbourhood deprivation and ethnic diversity, as discussed in the Literature Review.

According to Wilson's (1987) theory of social isolation, neighbourhood deprivation may reduce opportunities for upward social mobility and increase the likelihood of experiencing downward social mobility. As ethnic minorities in England are over-represented in deprived neighbourhoods, neighbourhood deprivation is expected to account for the ethnic inequalities in social mobility.

Furthermore, I draw on competing theories relating ethnic diversity to discrimination and social capital, both of which may be important for determining social mobility. Blumer's (1958) 'conflict' theory and Putnam's (2007) 'constrict' theory hypothesised negative consequences of ethnic diversity, with an increased risk of discrimination and the decline of all forms of social capital (Blumer, 1958, Putnam, 2007). If this is true, people living in more ethnically diverse neighbourhoods would have reduced chances of achieving upward social mobility and be at greater risk of downward social mobility. As ethnic minorities in England are concentrated into the most ethnically diverse neighbourhoods (Simpson and Finney, 2009), this exposure to ethnic diversity may explain the ethnic inequalities in social mobility.

On the other hand, Allport's (1954) 'contact' theory supposes that a greater mixing of ethnic groups increases tolerance and reduces discrimination (Allport, 1954). Mixing could also lead to the development of more ethnically and socioeconomically diverse informal networks and 'weak ties' (Granovetter, 1973) and supply richer information about potential job opportunities (Ioannides and Loury, 2004). Meanwhile, Aldrich's 'protected market' hypothesis and Portes' 'ethnic enclave' hypothesis suggested that the concentration of ethnic minorities within a local area increases demand for niche enterprise and opportunities for social mobility without discrimination of ethnicity or language fluency (Aldrich and Waldinger, 1990, Portes and Manning, 2005, Aldrich et al., 1985b, Wilson and Portes, 1980). Therefore, living in ethnically diverse neighbourhoods may be actually helping to constrain ethnic inequalities in social mobility rather than exacerbate them.

Social mobility is defined in this chapter as transitions from one type of social class to another. I address the following questions:

1) Are ethnic minorities more likely to be downwardly mobile than White individuals?
2) Are ethnic minorities less likely to be upwardly mobile than White individuals?
3) Is neighbourhood deprivation positively associated with the likelihood of downward social mobility?
4) Is neighbourhood deprivation negatively associated with the likelihood of upward social mobility?
5) What is the nature of the relationship between transitions in social class and neighbourhood ethnic diversity?
6) To what extent are any of the ethnic inequalities in social mobility explained by effects of neighbourhood deprivation and ethnic diversity?
7) Are there regional inequalities in social mobility, after controlling for any individual and neighbourhood characteristics?

6.2 Data

6.2.1 Sample

In this chapter, I use an extract of the ONS LS data sample which was outlined earlier in the Data and Method chapter. This is similar to the data that was used in chapter 5 which explored transitions in economic activity and inactivity. This sample comprised ONS LS members who appeared in England in 1991 and 2001, lived in urban wards in 1991, and were aged 18-49 for women and 18-54 for men in 1991.

However, there is one crucial difference between the data used here compared to that in chapter 5. In this chapter, the analysis is concerned with the social class of occupations and mobility between them. In order to have a social class a person must be in employment (some have previously assigned the social class of a head of household to a non-working partner, but I have not taken this approach as outlined in Chapter 3's discussion of gender and social mobility), only individuals who were employed in 1991 and 2001 are considered for analysis in this chapter. This is not the same as chapter five, which included people who were unemployed or economically inactive for homemaking reasons. As I described in the Data and Methods chapter, the measure of social class is the three-level classification of the NS-SEC (low, middle, and high social class occupations).

6.2.2 Dependent and independent variables

The dependent variables I focus on in this chapter are the same for men and women:

1. Low to middle or high class
2. Middle to high or low class

3. High to middle or low class

I explore the level of association between each dependent variable and several independent variables, all of which were defined in the Data and Method chapter:

> *Individual-level:* age group; change in educational qualifications (1991-2001); change in couple status (1991-2001); migrant generation status (born in UK/overseas); internal migration within the UK; household tenure
>
> *Neighbourhood-level:* Townsend deprivation; ethnic diversity (non-White concentration (indirect measure) and the Herfindahl index (direct measure)), all calculated for 1991 census wards
>
> *Region:* 'Standard Region' of residence in 1991

6.3 Analysis

6.3.1 Descriptive Statistics

Table 6-1 shows the percentage of men and women who were socially mobile between 1991 and 2001 for each dependent variable. Percentages were calculated by dividing the total number of persons who were socially mobile (e.g. the number of men in low class occupations in 1991 who moved to middle class occupations by 2001) by the total number of men in low class occupations in 1991. By 2001, most men and women remained in the same social class that they were in 1991. 69.9% of men and 67.3% of women stayed in low class occupations. 49.4% of men and 49.9 of women remained in middle class

occupations. 78.9% of men and 77.0% of women stayed in high class occupations. Although the major trend was for intragenerational social immobility, especially for men and women in low or high class occupations, there was clearly more upward and downward social mobility among those who were in middle class occupations in 1991. Again, men and women were quite similar, with 32.4% and 34.2% moving from middle to high class occupations respectively. On the other hand, 18.2% of men and 15.9% of women moved from middle to low class occupations by 2001. Therefore, not only were people in middle class occupations in 1991 more likely to be socially mobile compared to those in other social classes, but also the major transition was from middle to high class. 11.7% of men in low class occupations moved to the middle class. In comparison, levels of social mobility among women in low class occupations was relatively equal, with 16.2% moving to the middle class and 16.6% moving to the high class. Similar levels of social mobility were observed among men and women in high class occupations. 11.3% of men and 13.6% of women moved from high to middle class occupations. 9.9% of men and 9.4% of women moved from high to low class occupations.

Table 6.1: Social mobility among men and women between 1991 and 2001, defined by transitions in social class

		Men			Women	
		N	**%**		**N**	**%**
Low to:	low	19,972	69.9	low	12,023	67.3
	middle	3,329	11.7	middle	2,892	16.2
	high	5,268	18.4	high	2,963	16.6
	Total	28,569		Total	17,878	
Middle to:	middle	8,349	49.4	middle	8,970	49.9
	high	5,475	32.4	high	6,145	34.2
	low	3,067	18.2	low	2,860	15.9
	Total	16,891		Total	17,975	
High to:	high	19,759	78.9	high	10,891	77.0
	middle	2,823	11.3	middle	1,921	13.6
	low	2,476	9.9	low	1,333	9.4
		25,058		Total	14,145	

Source: ONS LS, created by the Author

6.3.2 Modelling Strategy

All statistical models were fitted separately for men and women and used multinomial logit regression. This type of model is useful for exploring the likelihood of an event occurring versus it not occurring, and at the same time considering that other events are also possible. For example, a multinomial logit regression is able to estimate the likelihood that a person in a low social class occupation in 1991 was to move to a high class occupation by 2001, controlling for the other alternatives (the person could also move to a middle class occupation, or remain in the low social class). Relative risk ratios are used to explain this likelihood and can be interpreted in the same way as odds ratios (explained in chapter 5). Persons who remained in the same social class in 2001 as they were in 1991 were fitted as the base category in each dependent variable. All models, for men and women, used the Huber White sandwich estimator to adjust for the clustering of individuals within wards (UCLA: Academic Technology Services SCG, 2009).

6.4 Results

6.4.1 Study 1: Low to middle or high social class occupation among men

Table 6-2 describes the sample of men who were in low social class occupations in 1991. The 'Total' column indicates the total number of men in low social class occupations in the 1991 sample, with the % column identifying the percentage of those men who experienced social mobility (transition to middle or high social classes) between 1991 and 2001. Relative Risk Ratios indicate the statistical likelihood that a man in a low social class occupation in 1991 will move to a middle or high social class occupation by 2001, compared to likelihood of remaining in a low social class occupation. Relative Risk Ratios are

derived from univariate multinomial logistic regression models, adjusting for the clustering of individuals within wards. 95% confidence intervals indicate the reliability of the Relative Risk Ratios and p-values suggest the level of significance, with $p<0.05$ considered statistically significant and highlighted in bold.

Compared to White men (11.34%), Indian men were 1.35 times more likely to move to the middle class (15.91%). Even higher rates of low to middle class mobility were observed for Pakistani (23.99%), Bangladeshi (22.35%), and especially Chinese men (BLANKED %). On the other hand, many ethnic minority groups had lower rates of low to high class mobility compared to Whites (18.68%), significantly for the Indian group (11.19%). 13.51% and 23.57% of men in low class occupations in 1991 moved to middle and high class by 2001 respectively. Older men were significantly less socially mobile in comparison with younger men.

10.99% of men in couples in 1991 and 2001 moved from low to middle class occupations. 16.29% moved from low to high class. In comparison, men who were single in 1991 and 2001 were 1.17 times more likely to move from low to middle class, and 1.20 times more likely to move from low to high class occupations. Men who were in a couple in 1991, but single by 2001, were not significantly more likely to move from low to middle class, but were 1.16 times more likely to move from low to high class (18.21%). Conversely, men who were single in 1991 but in a couple by 2001 were 1.36 times more likely than those in couples in 1991 and 2001 to move from low to middle class occupations. Similarly, men who were single and becoming part of a couple were also 1.79 times more likely to move from low to high class occupations by 2001.

9.41% of men with no qualifications in 1991 and 2001 moved from low to middle class occupations and 7.75% moved from low to high class. In comparison, men with qualifications in both 1991 and 2001, or who gained qualifications by 2001, were all significantly more likely to be socially mobile. Compared to homeowning men, of whom 11.87% moved from low to middle class and 19.21% moved from low to high class occupations, men who were private renters were significantly more likely to be socially mobile.

In comparison, men in socially rented tenure were significantly less likely to be socially mobile compared to homeowners.

11.29% and 18.79% of men born in the UK moved from low to middle and low to high class occupations respectively. Interestingly, men born overseas were 1.43 times more likely (16.24%) to move from low to middle class occupations, but were significantly less likely to move from low to high class (14.02%). 10.23% of men who stayed in the same ward in 1991 and 2001 moved from low to middle class occupations. 14.24% moved from low to high class. In comparison, men who migrated within the UK were 1.49 times more likely to move from low to middle class occupations (13.04%). Men who migrated within the UK were also 1.84 times more likely to move between low and high class occupations (22.53%).

12.17% of men living in affluent neighbourhoods moved from low to middle class occupations. 21.59% moved from low to high class. In comparison, men in more deprived neighbourhoods were significantly less likely to be socially mobile. 10.63% of men in the least non-White concentrated neighbourhoods moved from low to middle class occupations. 17.16% moved from low to high class. In comparison, men living in more non-White concentrated neighbourhoods were significantly more likely to be socially mobile. 12.60% of men in the most ethnically diverse neighbourhoods moved from low to middle class occupations. No significant difference in social mobility was observed for men in moderately diverse neighbourhoods. However, men in the least diverse neighbourhoods were significantly less likely to move from low to middle class occupations. On the other hand, a non-linear effect of ethnic diversity was found for low to high class mobility. 18.20% of men living in the least diverse neighbourhoods moved from low to high class occupations. Men in moderately diverse neighbourhoods were 1.21 times more likely to move from low to high class (19.73%), but those in the least diverse neighbourhoods were significantly less likely to be socially mobile (17.14%).

13.86% of men living in the South East moved from low to middle class occupations. 21.25% moved from low to high class. In comparison, men living in all other regions of England were significantly less likely to be socially mobile.

Table 6.2: Social mobility among men 1991 and 2001, defined by transitions in social class: the likelihood of men in low social class occupations in 1991 moving to a middle or high social class occupation by 2001

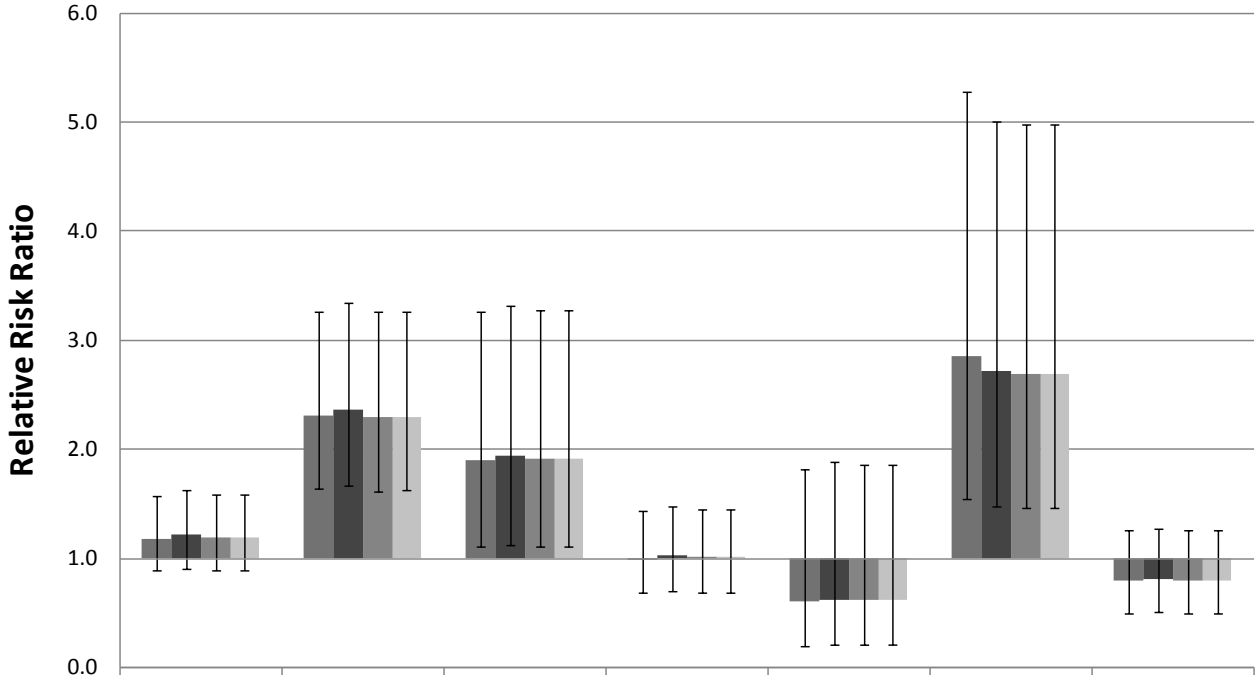
Men: Low to	Total	% Middle	RRR	95% CI		p	% High	RRR	95% CI		p
Ethnic Group											
White	26959	11.34	ref				18.68	ref			
Indian	679	**15.91**	**1.35**	**1.08**	**1.70**	**0.010**	**11.19**	**0.58**	**0.45**	**0.75**	**<0.001**
Pakistani	271	**23.99**	**2.43**	**1.81**	**3.28**	**<0.001**	15.50	0.95	0.66	1.37	0.787
Bangladeshi	85	**22.35**	**2.36**	**1.41**	**3.95**	**0.001**	12.94	0.83	0.45	1.52	0.550
Black Caribbean	265	13.21	1.15	0.81	1.64	0.425	15.85	0.84	0.61	1.17	0.309
Black African	45	BLANKED	0.85	0.30	2.45	0.771	26.67	1.56	0.81	3.01	0.180
Chinese	53	**32.08**	**3.19**	**1.77**	**5.77**	**<0.001**	BLANKED	0.34	0.11	1.12	0.077
Other	212	11.32	1.02	0.66	1.58	0.936	21.70	1.24	0.89	1.74	0.204
Total	28569	11.65					18.44				
Age Group											
18 to 29	11406	13.51	ref				23.57	ref			
30 to 39	**8245**	**11.44**	**0.76**	**0.69**	**0.83**	**<0.001**	**17.91**	**0.68**	**0.63**	**0.73**	**<0.001**
40 to 54	**8918**	**9.48**	**0.57**	**0.52**	**0.62**	**<0.001**	**12.37**	**0.42**	**0.39**	**0.46**	**<0.001**
Total	28569	11.65					18.44				
Couple Status											
Couple: 1991 & 2001	14646	10.99	ref				16.29	ref			
Single: 1991 & 2001	**7510**	**12.21**	**1.17**	**1.07**	**1.27**	**0.001**	**18.87**	**1.20**	**1.12**	**1.30**	**<0.001**
Couple: 1991; Single: 2001	2103	12.08	1.14	0.99	1.32	0.067	**18.21**	**1.16**	**1.03**	**1.31**	**0.018**
Single: 1991; Couple: 2001	**4310**	**12.71**	**1.36**	**1.23**	**1.52**	**<0.001**	**25.10**	**1.79**	**1.64**	**1.95**	**<0.001**
Total	28569	11.65					18.44				
Qualifications											
None at all	9573	9.41	ref				7.75	ref			
Qualifications: 1991 & 2001	**866**	**11.43**	**2.76**	**2.18**	**3.50**	**<0.001**	**52.08**	**15.32**	**12.93**	**18.16**	**<0.001**
None: 1991; Gained: 2001	**18119**	**12.84**	**1.74**	**1.60**	**1.90**	**<0.001**	**22.48**	**3.69**	**3.39**	**4.02**	**<0.001**
Total	28569	11.66					18.44				
Household Tenure											
Owner	22114	11.87	ref				19.21	ref			
Private renter	**1339**	**14.94**	**1.39**	**1.19**	**1.63**	**<0.001**	**23.30**	**1.31**	**1.15**	**1.50**	**<0.001**
Social renter	**5042**	**9.84**	**0.74**	**0.67**	**0.83**	**<0.001**	**13.53**	**0.63**	**0.58**	**0.69**	**<0.001**
Total	28569	11.65					18.44				
International Migration											
Born in the UK	26457	11.29	ref				18.79	ref			
Born overseas	**2112**	**16.24**	**1.43**	**1.26**	**1.63**	**<0.001**	**14.02**	**0.75**	**0.66**	**0.86**	**<0.001**
Total	28569	11.65					18.44				
Internal Migration											
Non-mover	14095	10.23	ref				14.24	ref			

Mover	**14469**	**13.04**	**1.49**	**1.39**	**1.61**	**<0.001**	**22.53**	**1.84**	**1.73**	**1.96**	**<0.001**
Total	28568	11.65					18.44				
Deprivation											
Low	8051	12.17	ref				21.59	ref			
Moderate	**10053**	**11.44**	**0.89**	**0.81**	**0.98**	**0.015**	**18.46**	**0.81**	**0.75**	**0.87**	**<0.001**
High	**10185**	**11.33**	**0.84**	**0.77**	**0.93**	**<0.001**	**15.58**	**0.65**	**0.61**	**0.71**	**<0.001**
Total	28569	11.65					18.44				
% Non-White											
Low	10471	10.63	ref				17.16	ref			
Moderate	**9364**	**11.80**	**1.17**	**1.07**	**1.28**	**0.001**	**19.70**	**1.21**	**1.12**	**1.31**	**<0.001**
High	**8454**	**12.61**	**1.24**	**1.13**	**1.36**	**<0.001**	**18.20**	**1.11**	**1.02**	**1.20**	**0.010**
Total	28569	11.65					18.44				
Ethnic diversity											
High	8462	12.60	ref				18.20	ref			
Moderate	9363	11.81	0.95	0.86	1.04	0.268	**19.73**	**1.10**	**1.01**	**1.19**	**0.023**
Low	**10464**	**10.63**	**0.81**	**0.74**	**0.89**	**<0.001**	**17.14**	**0.90**	**0.84**	**0.97**	**0.009**
Total	28569	11.65					18.44				
Standard Region											
South East	8599	13.86	ref				21.25				
North	**2198**	**9.65**	**0.61**	**0.52**	**0.72**	**<0.001**	**15.79**	**0.64**	**0.56**	**0.73**	**<0.001**
Yorkshire	**3460**	**10.09**	**0.63**	**0.55**	**0.71**	**<0.001**	**15.38**	**0.63**	**0.56**	**0.70**	**<0.001**
East Midlands	**2916**	**10.36**	**0.66**	**0.58**	**0.75**	**<0.001**	**17.42**	**0.72**	**0.65**	**0.81**	**<0.001**
East Anglia	**1278**	**9.78**	**0.65**	**0.54**	**0.79**	**<0.001**	**19.48**	**0.84**	**0.73**	**0.97**	**0.020**
South West	**2525**	**12.40**	**0.84**	**0.73**	**0.97**	**0.016**	**18.97**	**0.83**	**0.74**	**0.94**	**0.002**
West Midlands	**3743**	**9.59**	**0.61**	**0.54**	**0.70**	**<0.001**	**16.97**	**0.71**	**0.64**	**0.79**	**<0.001**
North West	**3846**	**12.40**	**0.83**	**0.74**	**0.94**	**0.003**	**17.94**	**0.78**	**0.70**	**0.86**	**<0.001**
Total	28568	11.65					18.44				

Source: ONS LS, created by the Author

Figure 6-1 shows the ethnic inequalities among men in low social class occupations in 1991 and the likelihood of moving to middle class occupations by 2001. Model 1 shows relative risk ratios for each ethnic group compared to the White group, adjusting for individual factors and region. Compared to White men, Pakistani, Bangladeshi and Chinese men were all significantly more likely to move from low to middle class occupations. These differences remained statistically significant after adjusting for deprivation in Model 2, and the measures of non-White concentration and ethnic diversity in Models 3 and 4. Indian men were more likely to move from low to middle class occupations and Black African men were less likely than White men, but neither of these ethnic inequalities was significant.

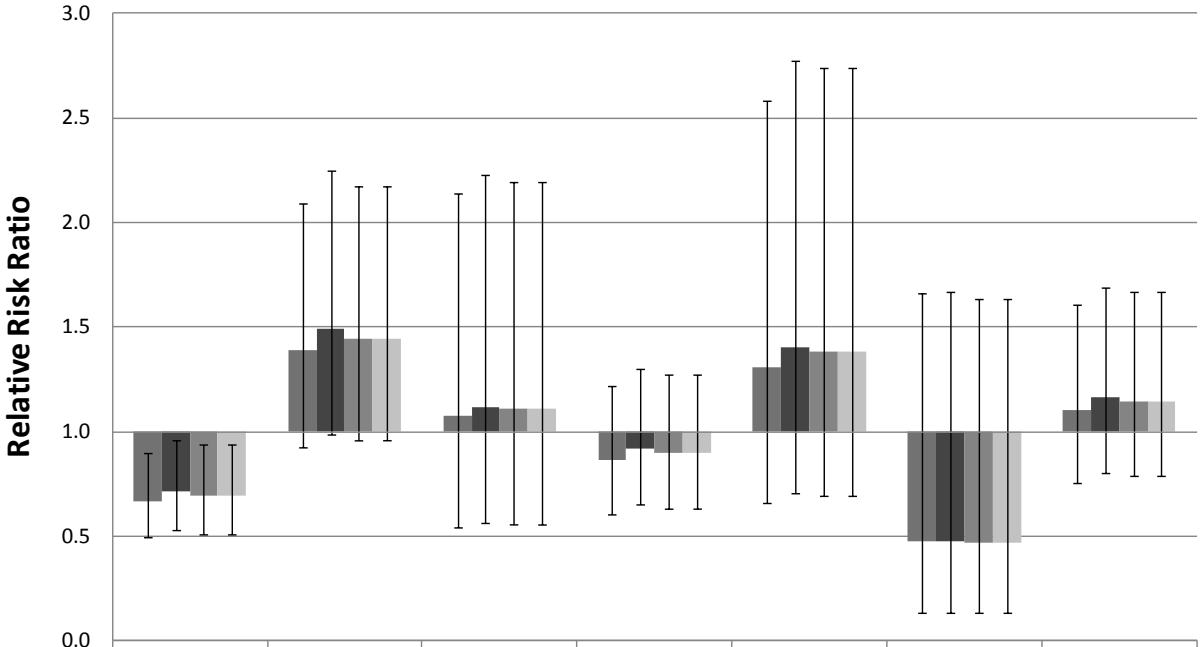
Figure 6-1: Ethnic inequalities in social mobility, defined by transitions in social class: the likelihood of men in low social class occupations in 1991 moving to middle class occupations by 2001 (Created by the author using the ONS LS)



	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Chinese	Other
Model 1	1.183	2.310	1.903	0.998	0.604	2.853	0.793
Model 2	1.215	2.363	1.935	1.022	0.624	2.720	0.807
Model 3	1.189	2.298	1.910	1.002	0.616	2.695	0.797
Model 4	1.190	2.300	1.911	1.003	0.616	2.696	0.798

Relative Risk Ratios and 95 % confidence intervals for each ethnic group compared to the White group. 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).
Models were adjusted as follows:
Model 1: all individual characteristics, plus region of residence
Model 2: as Model 1, plus the Townsend deprivation index for CAS wards
Model 3: as Model 2, plus the percentage of non-White concentration for CAS wards
Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 6-2: Ethnic inequalities in social mobility, defined by transitions in social class: the likelihood of men in low social class occupations in 1991 moving to high class occupations by 2001 (Created by the author using the ONS LS)



	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Chinese	Other
Model 1	0.670	1.390	1.080	0.862	1.306	0.477	1.103
Model 2	0.713	1.493	1.121	0.921	1.404	0.480	1.164
Model 3	0.694	1.444	1.107	0.901	1.382	0.472	1.146
Model 4	0.694	1.445	1.108	0.901	1.383	0.472	1.147

Relative Risk Ratios and 95 % confidence intervals for each ethnic group compared to the White group. 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).
Models were adjusted as follows:
Model 1: all individual characteristics, plus region of residence
Model 2: as Model 1, plus the Townsend deprivation index for CAS wards
Model 3: as Model 2, plus the percentage of non-White concentration for CAS wards
Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 6-2 shows the relative risk ratios of men in low class occupations moving to a high class occupation by 2001, comparing ethnic minority men to White men. Indian men were significantly less likely to move from low to high class occupations than White men, before and after adjusting for neighbourhood characteristics. The relative risk ratios also indicate a greater (non-significant) likelihood of low to high class mobility for Pakistani, Bangladeshi and Black African men, but lower likelihood for the Black Caribbean and Chinese compared to White men.

Figure 6-3 shows geographical variation in the likelihood of men in low class occupations moving to middle class by 2001. Regions with thick boundaries indicate a percentage that is significantly different to the South East ($p<0.05$). Significance levels are calculated from multinomial logit regression, adjusting for individual factors (age, education, couple status, household tenure, internal migrant status, immigrant status), deprivation and non-White concentration. Compared to the South East, it was clear that men in every other region were significantly less likely to move from low to middle class occupations by 2001 (except for the South West).

Figure 6-4 shows geographical variation in the likelihood of men in low class occupations moving to high class by 2001. Regions with thick boundaries indicate a level of social mobility that is significantly different to the level reported in the South East ($p<0.05$). Significance levels are calculated by multinomial logit regression, adjusting for individual factors, deprivation and non-White concentration. Compared to the South East, men in all other regions were significantly less likely to move from low to high class occupations by 2001 (except for East Anglia).

Figure 6-5 shows the effect of deprivation on the likelihood of men in low social class occupations moving to a middle class occupation by 2001. Model 2 shows a significantly negative effect on social mobility after controlling for individual factors and region of residence. Models 3 and 4 shows little change to the deprivation association after controlling for non-White concentration and ethnic diversity (separately).

Figure 6-6 shows the effect of deprivation on transitions from low to high class occupations among men. Men in more deprived neighbourhoods were significantly less likely to be upwardly socially mobile compared to those in more affluent neighbourhoods, after controlling for individual factors and region. Adjusting for non-White concentration and ethnic diversity of neighbourhoods increased the effect of deprivation on social mobility. Figure 6-7 shows the effect of neighbourhood ethnic diversity on the likelihood of men in low class occupations moving to the middle class, controlling for individual, region

and deprivation factors. Men resident in more non-White concentrated neighbourhoods were significantly more likely to be socially mobile. Similarly, men in the least diverse neighbourhoods were significantly less likely to be socially mobile.

Figure 6-8 shows the effect of neighbourhood ethnic diversity on the likelihood of men in low class occupations moving to the high class, controlling for individual, region and deprivation factors. Men living in more non-White concentrated neighbourhoods were significantly more likely to be socially mobile. Men living in less diverse neighbourhoods were significantly less likely to be socially mobile.

Figure 6-3: The likelihood of men in low class occupations moving to middle class occupations by 2001, by 1991 Standard Regions (Created by the author using the ONS LS)

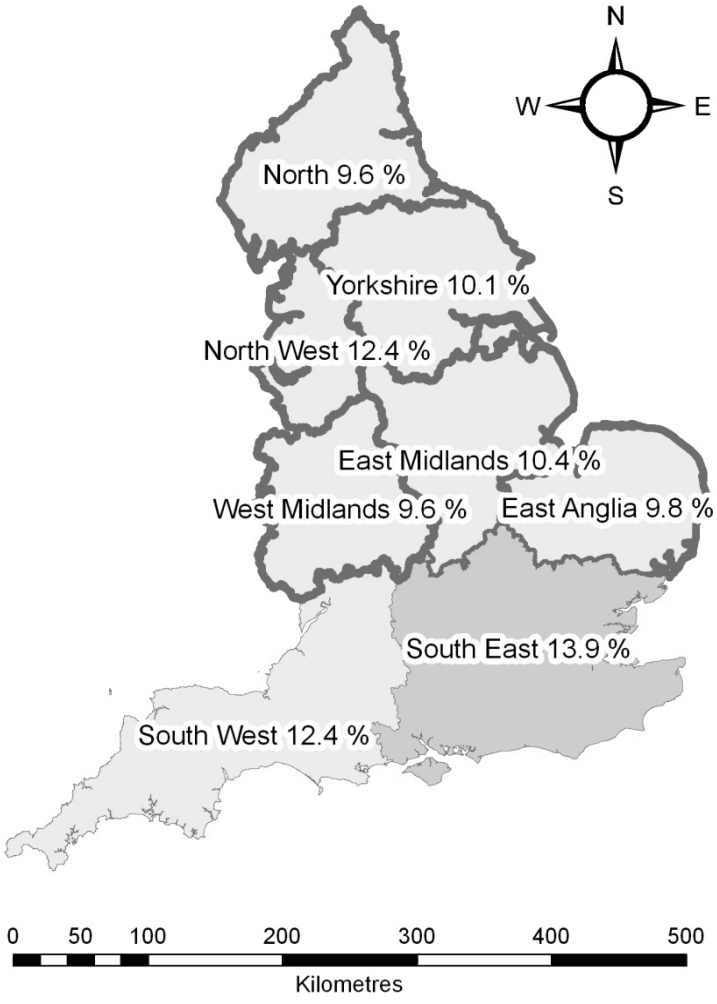
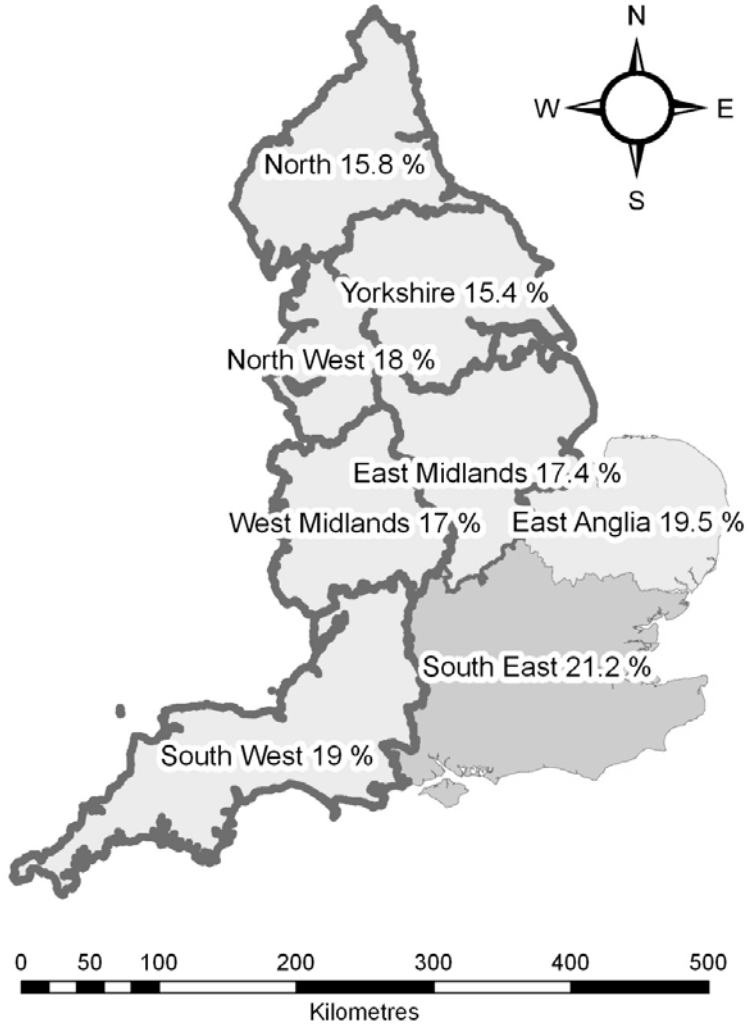


Figure 6-4: The likelihood of men in low class occupations moving to high class occupations by 2001, by 1991 Standard Regions (Created by the author using the ONS LS)



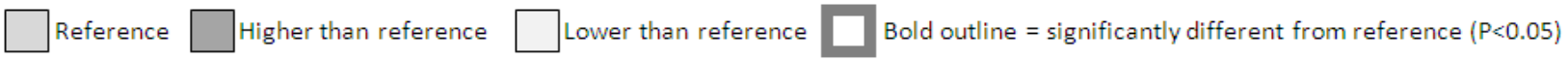
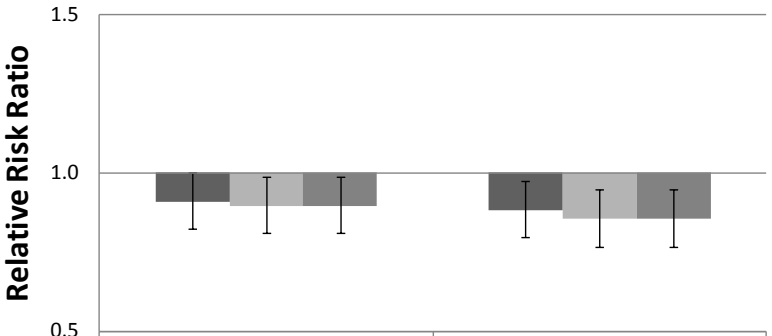


Figure 6-5: Deprivation inequalities in social mobility, defined by transitions in social class: the likelihood of men in low social class occupations in 1991 moving to middle class occupations by 2001 (Created by the author using the ONS LS)



	Moderate	High
Model 2	0.909	0.881
Model 3	0.895	0.853
Model 4	0.895	0.853

Relative Risk Ratios and 95 % confidence intervals for tertiles 2 (moderately deprived) and 3 (highly deprived) compared to the tertile 1 (affluent). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

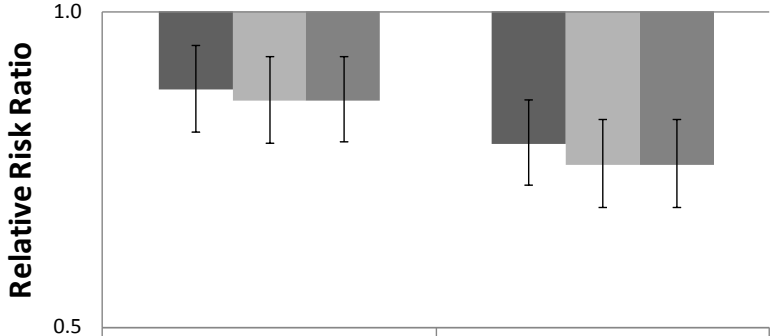
Models were adjusted as follows:

Model 2: all individual characteristics, region of residence, plus the Townsend deprivation index for CAS wards

Model 3: as Model 2, plus the percentage of non-White concentration for CAS wards

Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 6-6: Deprivation inequalities in social mobility, defined by transitions in social class: the likelihood of men in low social class occupations in 1991 moving to high class occupations by 2001 (Created by the author using the ONS LS)



	Moderate	High
Model 2	0.877	0.791
Model 3	0.860	0.757
Model 4	0.860	0.758

Relative Risk Ratios and 95 % confidence intervals for tertiles 2 (moderately deprived) and 3 (highly deprived) compared to the tertile 1 (affluent). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

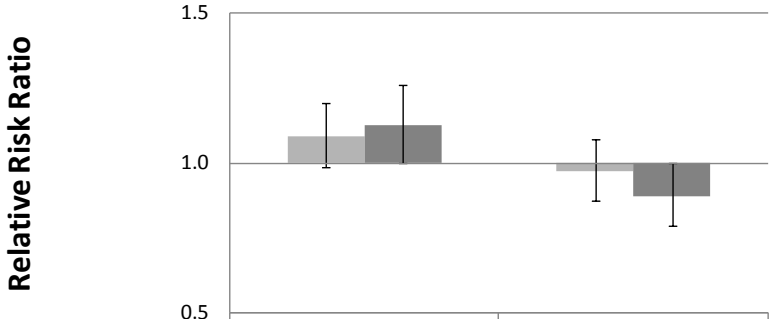
Models were adjusted as follows:

Model 2: all individual characteristics, region of residence, plus the Townsend deprivation index for CAS wards

Model 3: as Model 2, plus the percentage of non-White concentration for CAS wards

Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

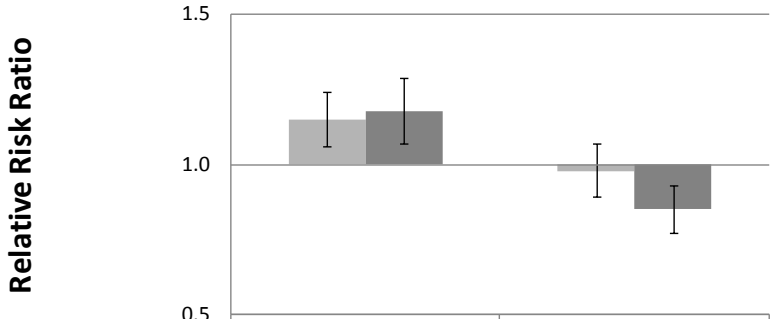
Figure 6-7: Inequalities in social mobility by neighbourhood non-White concentration and ethnic diversity, defined by transitions in social class: the likelihood of men in low social class occupations in 1991 moving to middle class occupations by 2001 (Created by the author using the ONS LS)



	% non-white concentration	Ethnic diversity
Moderate concentration / diversity	1.090	0.971
High concentration / Low Diversity	1.125	0.890

Relative Risk Ratios and 95 % confidence intervals for tertiles 2 (moderately non-White concentrated or moderately diverse) and 3 (highly non-White concentrated or least diverse) compared to the tertile 1 (least non-White concentrated or most ethnically diverse). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Figure 6-8: Inequalities in social mobility by neighbourhood non-White concentration and ethnic diversity, defined by transitions in social class: the likelihood of men in low social class occupations in 1991 moving to high class occupations by 2001 (Created by the author using the ONS LS)



	% non-white concentration	Ethnic diversity
Moderate concentration / diversity	1.148	0.978
High concentration / Low Diversity	1.176	0.851

Relative Risk Ratios and 95 % confidence intervals for tertiles 2 (moderately non-White concentrated or moderately diverse) and 3 (highly non-White concentrated or least diverse) compared to the tertile 1 (least non-White concentrated or most ethnically diverse). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Summary of Study 1

This study has demonstrated the existence of ethnic inequalities in social mobility among men in low class occupations in 1991. In terms of low to middle class mobility, Pakistani, Bangladeshi and Chinese men were all significantly more likely to achieve this transition than White men. This result is different to some previously published findings that report ethnic minorities are less likely to achieve favourable social mobility than Whites (e.g. (Heath and Smith, 2003)). However, in terms of low to high class mobility, no ethnic minority was at any significant advantage compared to Whites. In fact, Indian men were significantly less likely to achieve this form of social mobility compared to White men. These ethnic inequalities remained statistically significant after controlling for individual factors, neighbourhood characteristics, and the region of residence.

Results presented in this study also showed that men in low class occupations were significantly more likely to move to middle and high class occupations if they were living in the South East, compared to any other region in England. This is similar to the previous reports in the literature (Fielding, 1992). A clear north-south gradient was observed, with men in the North and Yorkshire regions having the lowest rates of this type of social class mobility. These results were after controlling for all individual and neighbourhood characteristics.

I also found significant independent associations between men's chances of social mobility and the characteristics of the neighbourhoods in which they lived. Men in more deprived neighbourhoods were less likely to move from low to middle class occupations. The chances of moving from low to high class occupations were especially affected by living in a deprived neighbourhood, with a clear negative trend.

Meanwhile, after accounting for deprivation, I showed in this study that men living in moderately ethnically mixed neighbourhoods were slightly more likely to be mobile than those in the most or least diverse neighbourhoods.

6.4.2 Study 2: Middle to low or high social class occupations among men

Table 6-3 shows the percentage of social mobility among men in middle class occupations in 1991, and low or high class occupations by 2001. The 'Total' column indicates the total number of all men in middle social class occupations in the 1991 sample, with the % column identifying the percentage of those men who experienced social mobility (transition to high or low social classes) between 1991 and 2001. Relative Risk Ratios indicate the statistical likelihood that a man in a middle social class occupation in 1991 will move to a high or low social class occupation by 2001, compared to likelihood of remaining in a middle social class occupation. Relative Risk Ratios are derived from univariate multinomial logistic regression models, adjusting for the clustering of individuals within wards. 95% confidence intervals indicate the reliability of the Relative Risk Ratios and p-values suggest the level of significance, with $p<0.05$ considered statistically significant and highlighted in bold.

Compared to White men (32.6%), Indian (26.76%), Pakistani (25.97%) and Bangladeshi (BLANKED %) men were less likely to move from middle to high class occupations. Black Caribbean (43.56%) and Black African (51.28%) men were significantly more likely in comparison. Men over 30 years old were less likely to move from middle to high class occupations, but also less likely to move from middle to low class occupations than those aged 18-29. 27.84% of men in a couple in 1991 and 2001 moved from middle to high class occupations. 18.04% moved to low class occupations. In comparison, men who were not part of a couple were significantly more likely to move to high and low class occupations by 2001.

Men with qualifications (60.95%), or who gained qualifications (35.34%), were significantly more likely to move from middle to high class occupations than men with no qualifications throughout (10.40%). In comparison, men with no qualifications throughout (26.60%) were more likely to move from middle to low class occupations than those with qualifications (5.6%) or those who gained qualifications (17.25%).

Men in privately rented household tenure were significantly more likely to move from middle to high (40.99%) than those who owned their home (32.53%). However, men in privately rented household tenure were also slightly more likely to move from middle to low class occupations (18.26%) than home owners (17.16%). Middle to low class mobility was also significantly more likely for men in socially rented housing (31.29%). Compared to men born in the UK, those born overseas and holding a middle class occupation in 1991 were more likely to remain in a middle class occupation by 2001. Men who moved within the UK between 1991 and 2001 were more socially mobile, middle to high and middle to low class transitions, than those who did not move.

Men in more affluent neighbourhoods (33.48%) were not more likely to move from middle to high class occupations than those in the most deprived areas (31.47%). However, men in more deprived neighbourhoods were significantly more likely to move from middle to low class occupations (19.94%) than those in more affluent areas (15.86%). Men in more non-White concentrated neighbourhoods were more likely to move from middle to high class occupations (34.41%) than those in White concentrated areas (29.50%), though non-White concentration was not significantly related to middle to low class transitions.

Those in the least ethnically diverse neighbourhoods were significantly less likely to move from middle to high class occupations (29.5%) compared to those in the most diverse areas (34.47%). Men in moderately diverse neighbourhoods were significantly more likely to move from middle to low class occupations (18.83%) than those in the most diverse places (16.52%). Compared to men in the South East (34.33%), those in Yorkshire (30.03%), the East Midlands (30.70%) and the North West (31.24%) were all significantly less likely to move from middle to high class occupations. Men in the South West (21.95%) and the West Midlands (21.07%) were more likely to move from middle to low class occupations than those in the South East (16.79%).

Table 6.3: Social mobility among men between 1991 and 2001, defined by transitions in social class: the likelihood of men in middle social class occupations in 1991 moving to a high or low social class occupation by 2001

Men: Middle to	Total	% High	RRR	95% CI		p	% Low	RRR	95% CI		p
Ethnic Group											
White	15824	32.60	ref				18.35	ref			
Indian	482	26.76	**0.69**	**0.56**	**0.86**	**0.001**	15.56	**0.73**	**0.56**	**0.94**	**0.016**
Pakistani	154	25.97	**0.64**	**0.43**	**0.98**	**0.038**	12.34	**0.54**	**0.33**	**0.90**	**0.017**
Bangladeshi	41	BLANKED	**0.22**	**0.08**	**0.64**	**0.005**	24.39	0.99	0.46	2.16	0.985
Black Caribbean	101	43.56	**1.55**	**1.02**	**2.35**	**0.039**	13.86	0.87	0.48	1.60	0.660
Black African	39	51.28	**2.53**	**1.22**	**5.24**	**0.013**	BLANKED	1.56	0.61	3.97	0.348
Chinese	88	21.59	**0.50**	**0.30**	**0.83**	**0.007**	12.50	**0.51**	**0.27**	**0.97**	**0.040**
Other	162	37.04	1.21	0.86	1.70	0.276	16.67	0.98	0.63	1.51	0.920
Total	16891	32.41					18.16				
Age Group											
18 to 29	5477	45.61	ref				16.91	ref			
30 to 39	**5435**	**31.21**	**0.50**	**0.46**	**0.54**	**<0.001**	**17.28**	**0.75**	**0.67**	**0.83**	**<0.001**
40 to 54	**5979**	**21.42**	**0.30**	**0.28**	**0.33**	**<0.001**	**20.10**	**0.77**	**0.69**	**0.85**	**<0.001**
Total	16891	32.41					18.16				
Couple Status											
Couple: 1991 & 2001	9614	27.94	ref				18.04	ref			
Single: 1991 & 2001	**3498**	**36.45**	**1.58**	**1.44**	**1.72**	**<0.001**	**18.67**	**1.24**	**1.12**	**1.39**	**<0.001**
Couple: 1991; Single: 2001	**1322**	**31.24**	**1.24**	**1.09**	**1.42**	**0.001**	**20.42**	**1.26**	**1.09**	**1.47**	**0.003**
Single: 1991; Couple: 2001	**2457**	**44.81**	**2.24**	**2.03**	**2.48**	**<0.001**	**16.69**	**1.29**	**1.13**	**1.47**	**<0.001**
Total	16891	32.41					18.16				
Qualifications											
None at all	3673	10.40	ref				26.60	ref			
Qualifications: 1991 & 2001	**1644**	**60.95**	**11.08**	**9.54**	**12.86**	**<0.001**	**5.60**	**0.40**	**0.31**	**0.50**	**<0.001**
None: 1991; Gained: 2001	**11565**	**35.34**	**4.49**	**4.00**	**5.05**	**<0.001**	**17.25**	**0.86**	**0.78**	**0.94**	**0.001**
Total	16892	32.41					18.16				
Household Tenure											
Owner	14850	32.53	ref				17.16	ref			
Private renter	**805**	**40.99**	**1.55**	**1.32**	**1.82**	**<0.001**	**18.26**	**1.34**	**1.09**	**1.64**	**0.005**
Social renter	1160	25.09	0.89	0.77	1.04	0.142	**31.29**	**2.11**	**1.83**	**2.43**	**<0.001**
Total	16891	32.41					18.16				
International Migration											
Born in the UK	15410	32.86	ref				18.39	ref			
Born overseas	**1481**	**27.82**	**0.73**	**0.64**	**0.82**	**<0.001**	**15.73**	**0.75**	**0.64**	**0.87**	**<0.001**
Total	16891	32.41					18.16				
Internal Migration											
Non-mover	7720	24.75	ref				19.25	ref			
Mover	**9162**	**38.86**	**2.00**	**1.87**	**2.15**	**<0.001**	**17.26**	**1.14**	**1.05**	**1.24**	**0.002**
Total	16891	32.41					18.16				
Deprivation											
Low	6412	33.48	ref				15.86	ref			
Moderate	5925	31.53	0.97	0.90	1.06	0.509	**19.46**	**1.27**	**1.15**	**1.40**	**<0.001**
High	4277	31.47	0.98	0.90	1.07	0.651	**19.94**	**1.31**	**1.18**	**1.46**	**<0.001**
Total	16891	32.41					18.16				

% Non-White											
Low	5572	29.50	ref				19.10	ref			
Moderate	**5788**	**32.98**	**1.19**	**1.10**	**1.30**	**<0.001**	18.83	1.05	0.95	1.16	0.329
High	**5254**	**34.41**	**1.22**	**1.12**	**1.33**	**<0.001**	16.54	0.91	0.82	1.01	0.078
Total	16891	32.41					18.16				
Ethnic diversity											
High	5259	34.47	ref				16.52	ref			
Moderate	5788	32.93	0.97	0.89	1.06	0.487	**18.83**	**1.16**	**1.04**	**1.29**	**0.007**
Low	**5567**	**29.50**	**0.82**	**0.75**	**0.89**	**<0.001**	19.11	1.10	0.99	1.23	0.075
Total	16891	32.41					18.16				
Standard Region											
South East	6979	34.33	ref				16.79	ref			
North	773	33.64	0.97	0.82	1.15	0.724	17.59	1.04	0.83	1.31	0.729
Yorkshire	**1552**	**30.03**	**0.83**	**0.73**	**0.94**	**0.004**	18.17	1.01	0.87	1.18	0.853
East Midlands	**1355**	**30.70**	**0.87**	**0.77**	**0.99**	**0.042**	19.26	1.10	0.94	1.29	0.230
East Anglia	746	33.65	1.00	0.83	1.20	0.980	18.90	1.16	0.94	1.42	0.170
South West	1886	30.06	0.90	0.79	1.01	0.080	**21.95**	**1.32**	**1.15**	**1.52**	**<0.001**
West Midlands	1704	30.93	0.91	0.80	1.04	0.169	**21.07**	**1.27**	**1.10**	**1.47**	**0.001**
North West	**1895**	**31.24**	**0.84**	**0.75**	**0.95**	**0.004**	15.94	0.88	0.76	1.02	0.100
Total	16890	32.42					18.16				

Source: ONS LS, created by the Author

Figure 6-9 shows the ethnic inequalities among men in middle class occupations moving to low class occupations between 1991 and 2001. Although some ethnic inequalities were observed, such as the lower likelihood of social mobility of Pakistani and Chinese men and high likelihood among Black African men compared to White men, none of the ethnic inequalities were statistically significant before and after controlling for neighbourhood characteristics.

Figure 6-10 shows the ethnic inequalities among men moving from middle to high class occupations, before and after controlling for neighbourhood characteristics. Bangladeshi men were less likely to move from middle to high class occupations than White men, but Black Caribbean men were more likely. These ethnic inequalities were statistically significant before and after taking into account the neighbourhood characteristics to which they were exposed. Indian and Chinese men also appeared less likely to move from middle to high class occupations, and Black African men were more likely, although none of these ethnic inequalities were statistically significant.

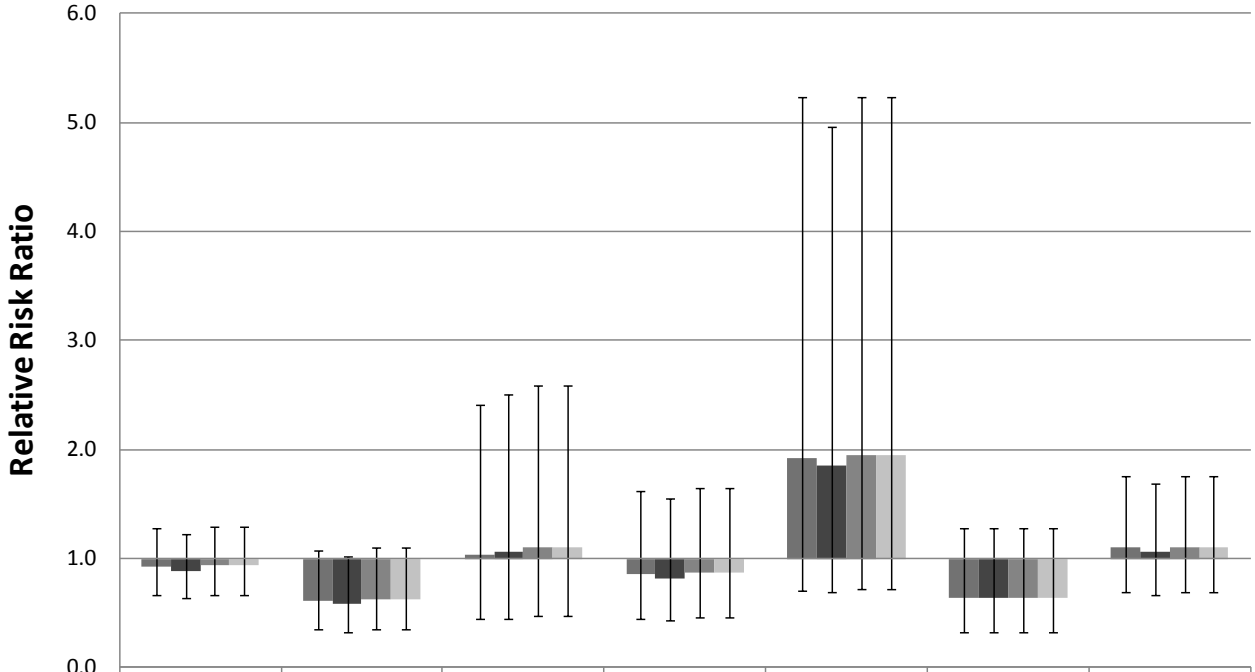
Figure 6-11 illustrates how the chances of men in middle class occupations moving to the high class varied regionally in England. The South East is coloured orange. Regions with higher percentages of social mobility are darker. Regions with smaller percentages of social mobility are lighter. Regions with thick boundaries indicate a percentage that is significantly different to the South East ($p<0.05$). Significance levels are calculated from multinomial logit regression, adjusting for individual factors, deprivation and non-White concentration. Compared to a social mobility rate of 34.4% in the South East, men in all other regions were less likely to move from middle to high class occupations. However, the extent of this regional variation was not statistically significant and there was not a clear north-south gradient.

Figure 6-12 shows that the regional inequality in the likelihood of men in middle class occupations moving to the low class was vastly different. The middle to low class mobility rate in the South East was 16.8%. In almost every other region of England, the social mobility rate was higher than the South East, except for the North West where it was significantly lower at 15.9%. In comparison, the rate was significantly higher among men in the West Midlands (21.1%) and the South West (22.0%). Middle to low class mobility was also higher in the North, Yorkshire, East Midlands and East Anglia compared to the South East, though not significantly. Therefore, for middle to low class mobility among men there was not a clear north-south gradient, but the region of residence in 1991 did appear to be important after controlling for individual and neighbourhood characteristics.

Figure 6-13 shows the effect of deprivation on middle to high class mobility among men between 1991 and 2001. Deprivation did not have a significant effect after controlling for individual factors and region. However, after controlling for neighbourhood non-White concentration or ethnic diversity, deprivation had a significantly negative effect on social mobility. Figure 6-14 shows the effect of deprivation on the likelihood of men in middle class occupations moving to low class occupations by 2001. Men in more deprived neighbourhoods were significantly more likely to move from middle to low class occupations, before and after taking into account the ethnic diversity of neighbourhoods, individual factors and region.

Figure 6-15 shows the effect of neighbourhood ethnic diversity on the likelihood of men in middle class occupations moving to the low class, controlling for individual, region and deprivation factors. Men living in more non-White concentrated neighbourhoods were significantly less likely to be socially mobile. Men living in less diverse neighbourhoods were significantly more likely to be socially mobile. Figure 16 shows the effect of neighbourhood ethnic diversity on the likelihood of men in middle class occupations moving to the high class, controlling for individual, region and deprivation factors. Men living in more non-White concentrated neighbourhoods were significantly more likely to be socially mobile. Men living in less diverse neighbourhoods were significantly less likely to be socially mobile.

Figure 6-9: Ethnic inequalities in social mobility, defined by transitions in social class: the likelihood of men in middle social class occupations in 1991 moving to low class occupations by 2001 (Created by the author using the ONS LS)



	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Chinese	Other
Model 1	0.920	0.615	1.039	0.860	1.928	0.646	1.107
Model 2	0.882	0.581	1.064	0.821	1.851	0.645	1.059
Model 3	0.934	0.624	1.106	0.867	1.952	0.647	1.101
Model 4	0.934	0.625	1.106	0.867	1.952	0.646	1.101

Relative Risk Ratios and 95 % confidence intervals for each ethnic group compared to the White group. 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Models were adjusted as follows:

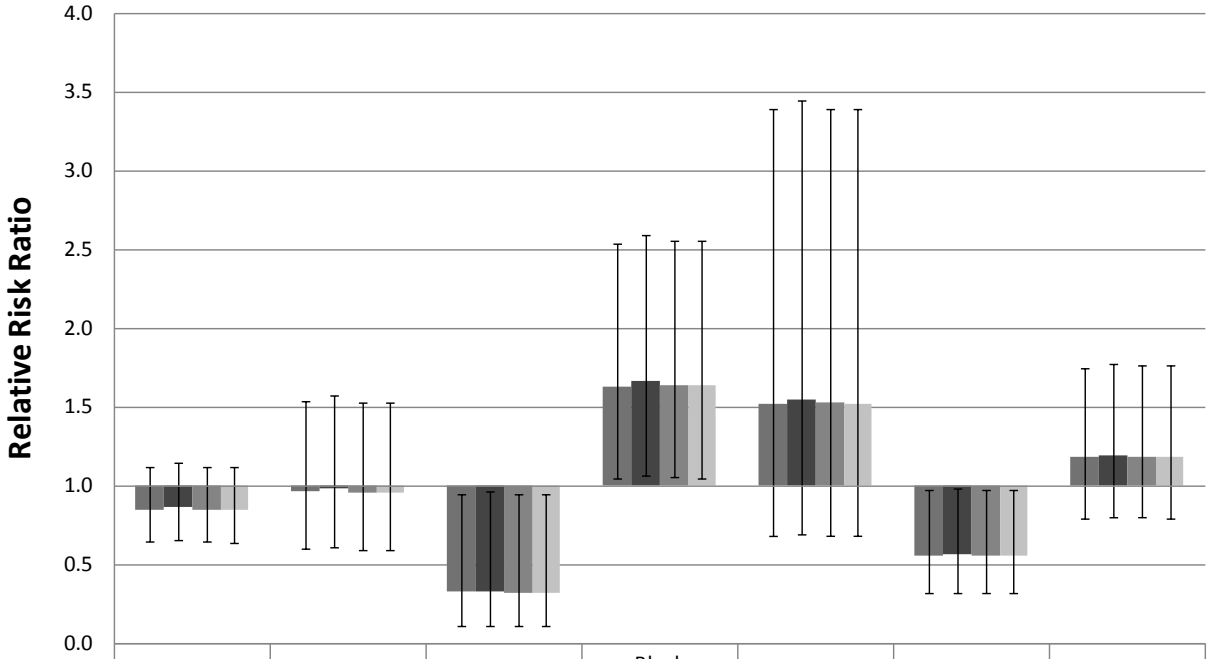
Model 1: all individual characteristics, plus region of residence

Model 2: as Model 1, plus the Townsend deprivation index for CAS wards

Model 3: as Model 2, plus the percentage of non-White concentration for CAS wards

Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 6-10: Ethnic inequalities in social mobility, defined by transitions in social class: the likelihood of men in middle social class occupations in 1991 moving to high class occupations by 2001 (Created by the author using the ONS LS)



	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Chinese	Other
Model 1	0.852	0.963	0.326	1.628	1.523	0.557	1.181
Model 2	0.869	0.985	0.332	1.667	1.546	0.567	1.197
Model 3	0.850	0.957	0.324	1.642	1.527	0.560	1.187
Model 4	0.849	0.955	0.324	1.640	1.525	0.559	1.186

Relative Risk Ratios and 95 % confidence intervals for each ethnic group compared to the White group. 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Models were adjusted as follows:

Model 1: all individual characteristics, plus region of residence

Model 2: as Model 1, plus the Townsend deprivation index for CAS wards

Model 3: as Model 2, plus the percentage of non-White concentration for CAS wards

Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 6-11: Regional inequalities in the likelihood of men in middle social class occupations in 1991 moving to high class occupations by 2001, by 1991 Standard Region (Created by the author using the ONS LS)

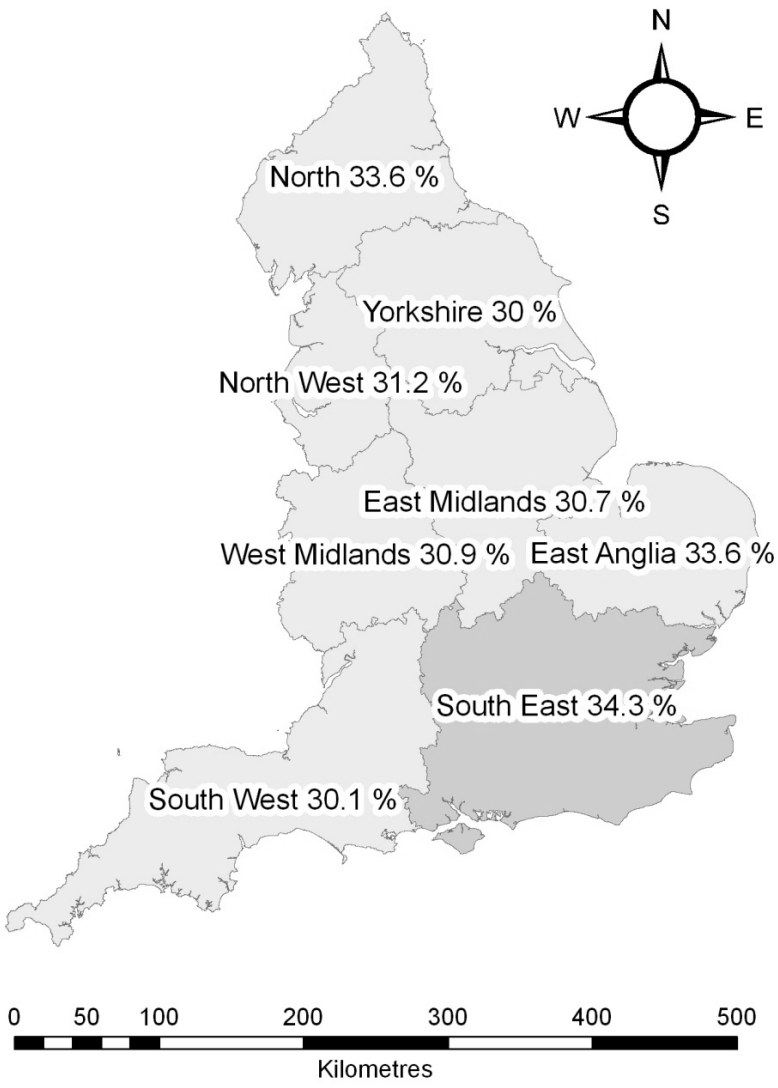
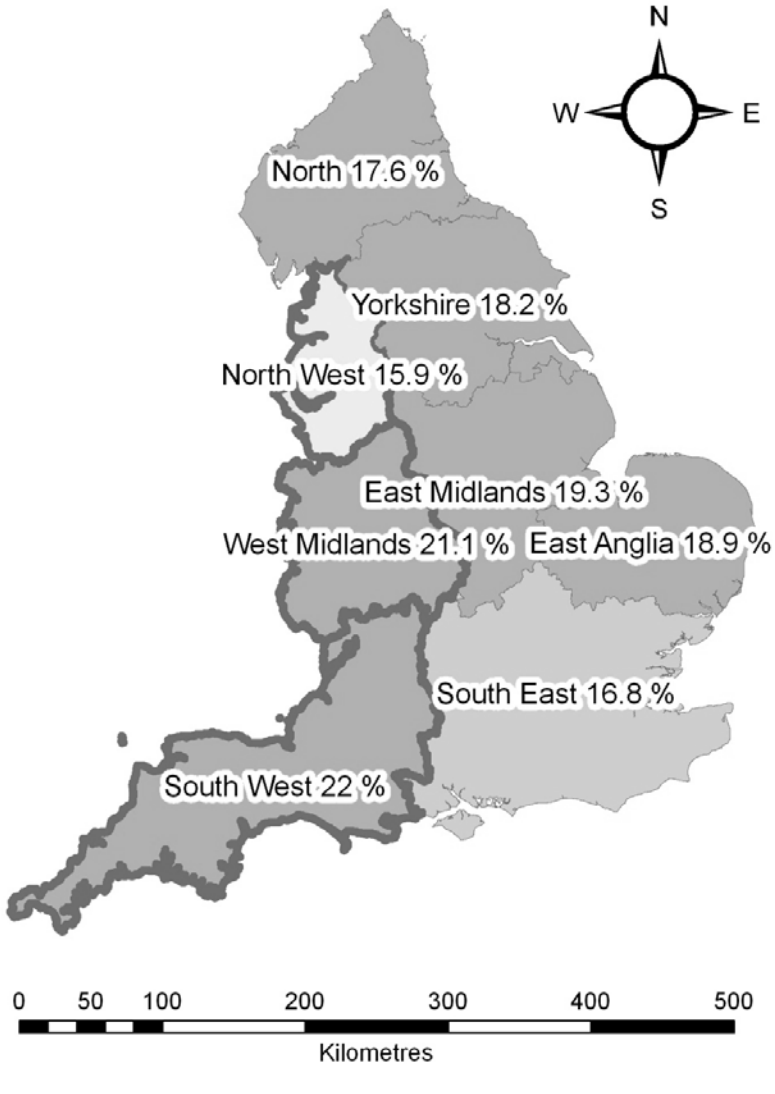
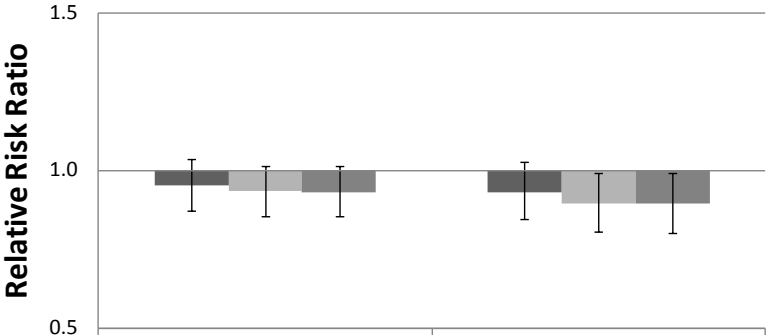


Figure 6-12: Regional inequalities in the likelihood of men in middle social class occupations in 1991 moving to low class occupations by 2001, by 1991 Standard Region (Created by the author using the ONS LS)



Reference | Higher than reference | Lower than reference | Bold outline = significantly different from reference (P<0.05)

Figure 6-13: Deprivation inequalities in social mobility, defined by transitions in social class: the likelihood of men in middle social class occupations in 1991 moving to high class occupations by 2001 (Created by the author using the ONS LS)



	Moderate	High
Model 2	0.952	0.932
Model 3	0.933	0.894
Model 4	0.932	0.893

Relative Risk Ratios and 95 % confidence intervals for tertiles 2 (moderately deprived) and 3 (highly deprived) compared to the tertile 1 (affluent). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

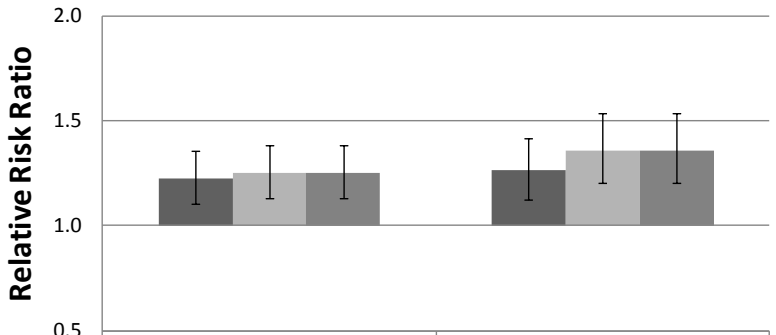
Models were adjusted as follows:

Model 2: all individual characteristics, region of residence, plus the Townsend deprivation index for CAS wards

Model 3: as Model 2, plus the percentage of non-White concentration for CAS wards

Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 6-14: Deprivation inequalities in social mobility, defined by transitions in social class: the likelihood of men in middle social class occupations in 1991 moving to low class occupations by 2001 (Created by the author using the ONS LS)



	Moderate	High
Model 2	1.224	1.265
Model 3	1.251	1.361
Model 4	1.251	1.361

Relative Risk Ratios and 95 % confidence intervals for tertiles 2 (moderately deprived) and 3 (highly deprived) compared to the tertile 1 (affluent). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

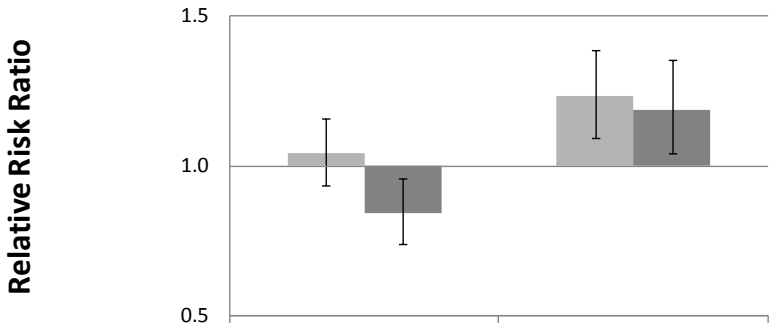
Models were adjusted as follows:

Model 2: all individual characteristics, region of residence, plus the Townsend deprivation index for CAS wards

Model 3: as Model 2, plus the percentage of non-White concentration for CAS wards

Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

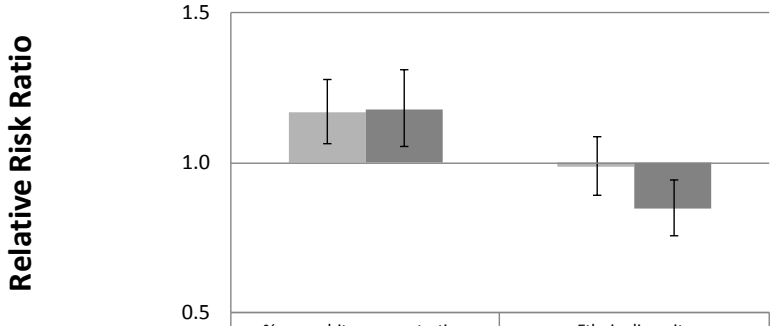
Figure 6-15: Inequalities in social mobility by neighbourhood non-White concentration and ethnic diversity, defined by transitions in social class: the likelihood of men in middle social class occupations in 1991 moving to low class occupations by 2001 (Created by the author using the ONS LS)



	% non-white concentration	Ethnic diversity
Moderate concentration / diversity	1.041	1.234
High concentration / Low Diversity	0.844	1.187

Relative Risk Ratios and 95 % confidence intervals for tertiles 2 (moderately non-White concentrated or moderately diverse) and 3 (highly non-White concentrated or least diverse) compared to the tertile 1 (least non-White concentrated or most ethnically diverse). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Figure 6-16: Inequalities in social mobility by neighbourhood non-White concentration and ethnic diversity, defined by transitions in social class: the likelihood of men in middle social class occupations in 1991 moving to high class occupations by 2001 (Created by the author using the ONS LS)



	% non-white concentration	Ethnic diversity
Moderate concentration / diversity	1.168	0.987
High concentration / Low Diversity	1.176	0.846

Relative Risk Ratios and 95 % confidence intervals for tertiles 2 (moderately non-White concentrated or moderately diverse) and 3 (highly non-White concentrated or least diverse) compared to the tertile 1 (least non-White concentrated or most ethnically diverse). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Summary of Study 2

This study explored variation in the chances of social mobility among men in middle class occupations in 1991. Two types of social mobility were considered: moves upward to the high class; and moves downward to the low class. I found some variation in social mobility, though no significant ethnic inequalities in terms of middle class men moving to low class. Therefore, ethnic minorities were not more likely to experience downward mobility compared to Whites. In comparison, significant ethnic inequalities in middle to high class mobility were found. Bangladeshi men were significantly less likely to achieve upward mobility compared to White men, but Black Caribbean men were significantly more likely. Indian and Chinese men also appeared less likely to move from middle to high class occupations, and Black African men more likely, though these ethnic inequalities were not statistically significant.

Regional inequalities in social mobility existed, after controlling for individual and neighbourhood characteristics. Men in the South East were more likely to be upwardly mobile and less likely to experience downward class mobility. However, there was some variation with men in the North West significantly less likely to experience downward mobility compared to those in the South East, but men in the West Midlands and South West were significantly more likely to move from middle to low class occupations. In other words, region of residence for the likelihood of social mobility among men in middle class occupations was independently important, though not in the form of a clear north-south gradient.

Finally, this study has also demonstrated a significant association between social mobility and the characteristics of neighbourhoods, after controlling for individual factors and region. Men in more deprived neighbourhoods were less likely to move from middle to high class occupations. Furthermore, men in more deprived neighbourhoods were significantly more likely to move from middle to low class occupations. Each of these results is broadly according to expectations. After controlling for deprivation, ethnic diversity of the neighbourhood also seemed to be important. Men in the least diverse

neighbourhoods were significantly less likely to achieve upward mobility, and more likely to be downwardly mobile.

6.4.3 Study 3: High to low or middle social class occupation among men

Table 6-4 shows the percentage of social mobility among men in high class occupations in 1991 and the likelihood of moving to middle or low class occupations by 2001. The 'Total' column indicates the total number of men in high social class occupations in the 1991 sample, with the % column identifying the percentage of those men who experienced social mobility (transition to middle or low social classes) between 1991 and 2001. Relative Risk Ratios indicate the statistical likelihood that a man in a middle social class occupation in 1991 will move to a middle or low social class occupation by 2001, compared to likelihood of remaining in a high social class occupation. Relative Risk Ratios are derived from univariate multinomial logistic regression models, adjusting for the clustering of individuals within wards. 95% confidence intervals indicate the reliability of the Relative Risk Ratios and p-values suggest the level of significance, with $p<0.05$ considered statistically significant and highlighted in bold.

Few significant ethnic inequalities were observed. Bangladeshi men were five times more likely to move from high to middle class occupations, but this result is based upon only 18 Bangladeshi men and therefore unreliable. Men aged 40-54 were significantly more likely to move from high to middle (13.57%) or to low (11.84%) occupations than those aged 18-29 (9.99% and 9.88% for each class transition). Men who were single throughout (12.73%) or became single (12.31%) were more likely to move from high to middle class occupations than those who were in a couple throughout (11.03%). Men who became single were 1.34 times more likely to move from high to low class occupations (12.53%) than those who were in a couple throughout (9.84%), though men who became part of a couple were less

likely (8.23%). Men with qualifications, or who gained qualifications, were significantly less likely to experience high to middle or low class mobility between 1991 and 2001. Men in socially rented household tenure were 1.36 times more likely to move from high to middle (11.97%) and four times as likely to move from high to low (27.81%) as were those who were homeowners. Overseas born men were significantly more likely to move from high to middle (12.97%) class occupations than those born in the UK (11.12%). However, overseas born men were significantly less likely to move from high to low class occupations (7.73%) than the UK born (10.06%).

Men in high class occupations in 1991 and who had moved within the UK were more likely to remain in high class occupations by 2001, compared to those who did not move. Neighbourhood deprivation was not associated with high to middle class transitions, but men in more deprived neighbourhoods were significantly more likely to experience high to low class mobility (12.18%) than those in more affluent areas (8.2%). Non-White concentration and ethnic diversity had no association with high to middle class mobility. However, men in more non-White concentrated and diverse neighbourhoods were significantly less likely to move from high to low class occupations by 2001. High to middle class mobility did not vary among men by geographical region, though men in every region outside the South East were significantly more likely to move from high to low class occupations.

Table 6.4: Social mobility among men between 1991 and 2001, defined by transitions in social class: the likelihood of men in high social class occupations in 1991 moving to a middle or low social class occupation by 2001

Men: High to	Total	% Middle	RRR	95% CI		p	% Low	RRR	95% CI		p
Ethnic Group											
White	23896	11.19	ref				9.94	ref			
Indian	489	13.09	1.18	0.90	1.54	0.225	7.57	0.76	0.54	1.07	0.118
Pakistani	118	16.10	1.55	0.94	2.55	0.088	9.32	1.00	0.53	1.87	0.997
Bangladeshi	**18**	BLANKED	**5.31**	**1.74**	**16.19**	**0.003**	BLANKED	1.98	0.40	9.67	0.401
Black Caribbean	96	11.46	1.05	0.56	1.99	0.875	10.42	1.07	0.56	2.04	0.843
Black African	65	BLANKED	1.42	0.69	2.90	0.342	BLANKED	1.58	0.73	3.40	0.243
Chinese	73	BLANKED	1.14	0.53	2.46	0.743	BLANKED	0.71	0.28	1.77	0.457
Other	304	10.20	0.89	0.62	1.29	0.547	8.55	0.83	0.55	1.26	0.391
Total	25059	11.27					9.88				

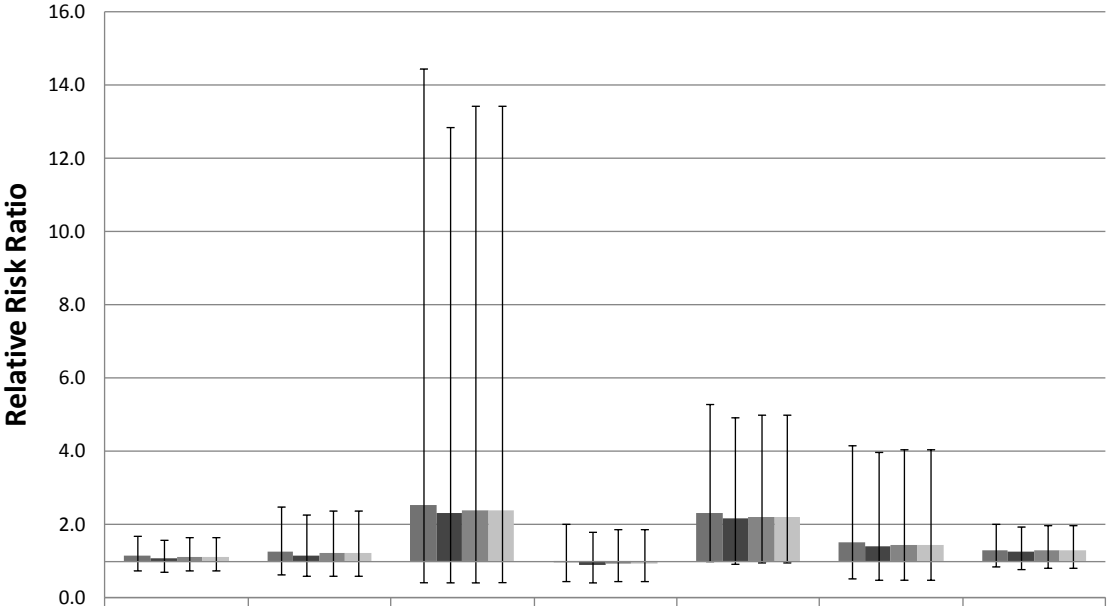
Age Group											
18 to 29	6528	9.99	ref				9.88	ref			
30 to 39	8826	9.68	0.94	0.84	1.05	0.263	**7.73**	**0.75**	**0.67**	**0.84**	**<0.001**
40 to 54	**9704**	**13.57**	**1.46**	**1.31**	**1.61**	**<0.001**	**11.84**	**1.27**	**1.15**	**1.41**	**<0.001**
Total	25058	11.27					9.88				
Couple Status											
Couple: 1991 & 2001	15453	11.03	ref				9.84	ref			
Single: 1991 & 2001	**4132**	**12.73**	**1.18**	**1.06**	**1.31**	**0.003**	10.29	1.08	0.97	1.22	0.170
Couple: 1991; Single: 2001	**1852**	**12.31**	**1.18**	**1.01**	**1.38**	**0.034**	**12.53**	**1.34**	**1.15**	**1.56**	**<0.001**
Single: 1991; Couple: 2001	3621	10.08	0.88	0.78	1.00	0.054	**8.23**	**0.82**	**0.72**	**0.93**	**0.003**
Total	25058	11.27					9.88				
Qualifications											
None at all	1820	18.74	ref				30.71	ref			
Qualifications: 1991 & 2001	**11794**	**6.61**	**0.20**	**0.17**	**0.23**	**<0.001**	**3.65**	**0.07**	**0.06**	**0.08**	**<0.001**
None: 1991; Gained: 2001	**11418**	**14.84**	**0.56**	**0.49**	**0.64**	**<0.001**	**12.94**	**0.30**	**0.27**	**0.34**	**<0.001**
Total	25058	11.27					9.88				
Household Tenure											
Owner	22731	11.33	ref				9.33	ref			
Private renter	1380	9.64	0.84	0.70	1.01	0.068	7.97	0.83	0.67	1.02	0.070
Social renter	**827**	**11.97**	**1.36**	**1.09**	**1.71**	**0.007**	**27.81**	**4.00**	**3.38**	**4.73**	**<0.001**
Total	25058	11.27					9.88				
International Migration											
Born in the UK	23092	11.12	ref				10.06	ref			
Born overseas	**1966**	**12.97**	**1.17**	**1.02**	**1.35**	**0.030**	**7.73**	**0.77**	**0.64**	**0.92**	**0.004**
Total	25058	11.27					9.88				
Internal Migration											
Non-mover	10807	11.80	ref				11.62	ref			
Mover	**14239**	**10.87**	**0.87**	**0.80**	**0.94**	**0.001**	**8.56**	**0.70**	**0.64**	**0.76**	**<0.001**
Total	25057	11.27					9.88				
Deprivation											
Low	11364	11.18	ref				8.20	ref			
Moderate	7913	11.03	1.02	0.93	1.12	0.696	**10.86**	**1.37**	**1.23**	**1.51**	**<0.001**
High	5305	11.71	1.11	1.00	1.23	0.055	**12.18**	**1.57**	**1.40**	**1.77**	**<0.001**
Total	25058	11.27					9.88				
% Non-White											
Low	7609	11.43	ref				10.80	ref			
Moderate	8864	11.00	0.95	0.86	1.05	0.289	10.02	0.91	0.82	1.02	0.093
High	8109	11.33	0.97	0.87	1.07	0.522	**8.97**	**0.81**	**0.72**	**0.91**	**<0.001**
Total	25058	11.27					9.88				
Ethnic diversity											
High	8114	11.33	ref				8.98	ref			
Moderate	8862	11.00	0.98	0.89	1.08	0.686	**10.00**	**1.12**	**1.00**	**1.26**	**0.043**
Low	7606	11.44	1.04	0.93	1.15	0.510	**10.81**	**1.23**	**1.10**	**1.38**	**<0.001**
Total	25058	11.27					9.88				
Standard Region											
South East	11103	11.41	ref				8.22	ref			

North	1116	10.39	0.93	0.75	1.16	0.531	**12.19**	**1.53**	**1.26**	**1.86**	**<0.001**
Yorkshire	2142	10.88	0.97	0.83	1.13	0.712	**11.53**	**1.45**	**1.23**	**1.72**	**<0.001**
East Midlands	2073	11.77	1.07	0.92	1.25	0.365	**10.90**	**1.39**	**1.18**	**1.63**	**<0.001**
East Anglia	982	10.69	0.94	0.77	1.16	0.594	**10.90**	**1.35**	**1.07**	**1.69**	**0.010**
South West	2159	12.46	1.12	0.97	1.30	0.119	**10.88**	**1.38**	**1.17**	**1.61**	**<0.001**
West Midlands	2522	10.03	0.90	0.78	1.04	0.147	**11.70**	**1.47**	**1.27**	**1.71**	**<0.001**
North West	2960	11.35	1.03	0.90	1.17	0.689	**10.68**	**1.34**	**1.16**	**1.56**	**<0.001**
Total	25057	11.27					9.88				

Source: ONS LS, created by the Author

Figure 6-17 shows the ethnic inequalities in high to low class social mobility among men between 1991 and 2001. Indian, Pakistani, Bangladeshi, Black African and Chinese men were all more likely to be socially mobile by this definition compared to White men, though not significantly. Figure 18 shows the ethnic inequalities among men in the likelihood of moving from high to middle class occupations to the likelihood of remaining in high class occupations between 1991 and 2001. Bangladeshi men were over five times significantly more likely to move from high to middle class occupations, before and after controlling for neighbourhood characteristics. Indian, Pakistani, Black African and Chinese men were also more likely to move from high to low class occupations compared to White men, though these ethnic inequalities were not significant.

Figure 6-17: Ethnic inequalities in social mobility, defined by transitions in social class: the likelihood of men in high social class occupations in 1991 moving to low class occupations by 2001 (Created by the author using the ONS LS)



	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Chinese	Other
Model 1	1.149	1.282	2.539	0.997	2.317	1.510	1.323
Model 2	1.073	1.168	2.329	0.902	2.162	1.431	1.261
Model 3	1.120	1.224	2.415	0.934	2.209	1.464	1.299
Model 4	1.119	1.222	2.413	0.933	2.207	1.463	1.298

Relative Risk Ratios and 95 % confidence intervals for each ethnic group compared to the White group. 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Models were adjusted as follows:

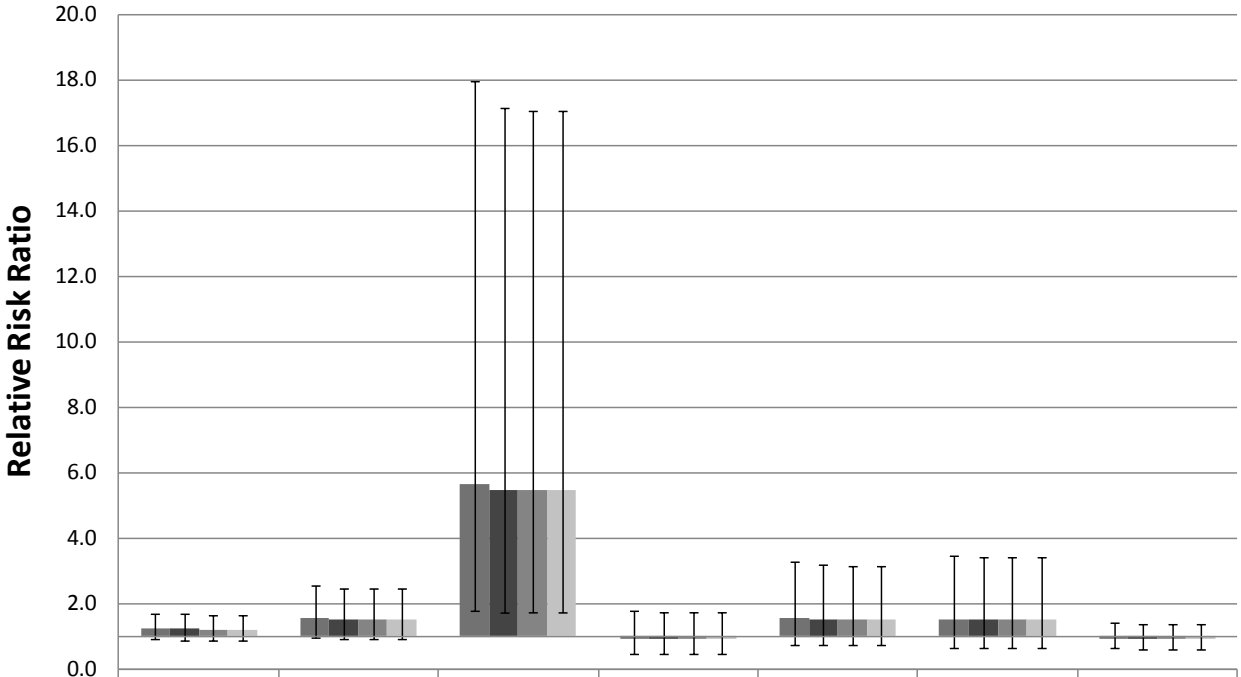
Model 1: all individual characteristics, plus region of residence

Model 2: as Model 1, plus the Townsend deprivation index for CAS wards

Model 3: as Model 2, plus the percentage of non-White concentration for CAS wards

Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 6-18: Ethnic inequalities in social mobility, defined by transitions in social class: the likelihood of men in high social class occupations in 1991 moving to middle class occupations by 2001 (Created by the author using the ONS LS)



	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Chinese	Other
Model 1	1.248	1.573	5.659	0.937	1.581	1.522	0.947
Model 2	1.223	1.511	5.477	0.908	1.523	1.506	0.929
Model 3	1.218	1.507	5.461	0.905	1.517	1.503	0.926
Model 4	1.219	1.507	5.463	0.905	1.517	1.503	0.926

Relative Risk Ratios and 95 % confidence intervals for each ethnic group compared to the White group. 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Models were adjusted as follows:

Model 1: all individual characteristics, plus region of residence

Model 2: as Model 1, plus the Townsend deprivation index for CAS wards

Model 3: as Model 2, plus the percentage of non-White concentration for CAS wards

Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 6-19 illustrates some regional variation in high to middle class mobility among men, though not statistically significant. The South East is coloured orange. Regions with higher percentages of social mobility are darker. Regions with smaller percentages of mobility are lighter. Regions with thick boundaries indicate a percentage that is significantly different to the South East ($p<0.05$). Significance

levels were calculated from multinomial logit regression, adjusting for individual factors, deprivation and non-White concentration. Figure 6-20 shows that significant regional inequalities in high to low class mobility among men existed. The South East is coloured orange. Regions with higher percentages of social mobility are darker. Regions with smaller percentages of mobility are lighter. Regions with thick boundaries indicate a percentage that is significantly different to the South East ($p<0.05$). Significance levels were calculated from multinomial logit regression, adjusting for individual factors, deprivation and non-White concentration. Compared to the South East, men in every other region of England were significantly more likely to move from high to low social class.

Figure 6-21 shows the effect of deprivation on the likelihood of men in high class occupations moving to low class occupations by 2001. Men in more deprived neighbourhoods were significantly more likely to be downwardly mobile, before and after taking into account the ethnic diversity of neighbourhoods. Figure 6-22 shows the effect of deprivation on high to middle class mobility among men. Men in more deprived neighbourhoods appeared to be more downwardly mobile. However, this association was not significant. Figure 6-23 shows the effect of neighbourhood ethnic diversity on the likelihood of men in high class occupations moving to the low class, controlling for individual, region and deprivation factors. Men in more non-White concentrated neighbourhoods were less likely to be socially mobile. Men in less diverse neighbourhoods were more likely to be socially mobile. Figure 6-24 shows the effect of neighbourhood ethnic diversity on the likelihood of men in high class occupations moving to the middle class, controlling for individual, region and deprivation factors. Neither the non-White concentration, nor the ethnic diversity of the neighbourhood affected the likelihood of this form of social mobility among men.

Figure 6-19: Regional inequalities in high to middle class social mobility among men, by 1991 Standard Region (Created by the author using the ONS LS)

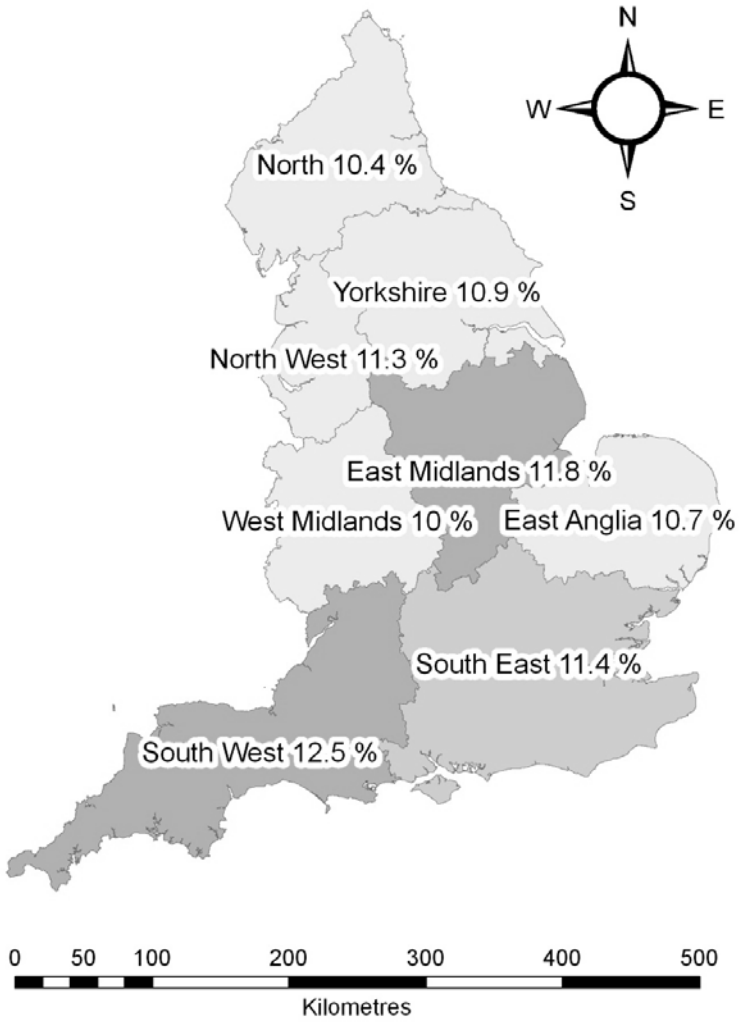
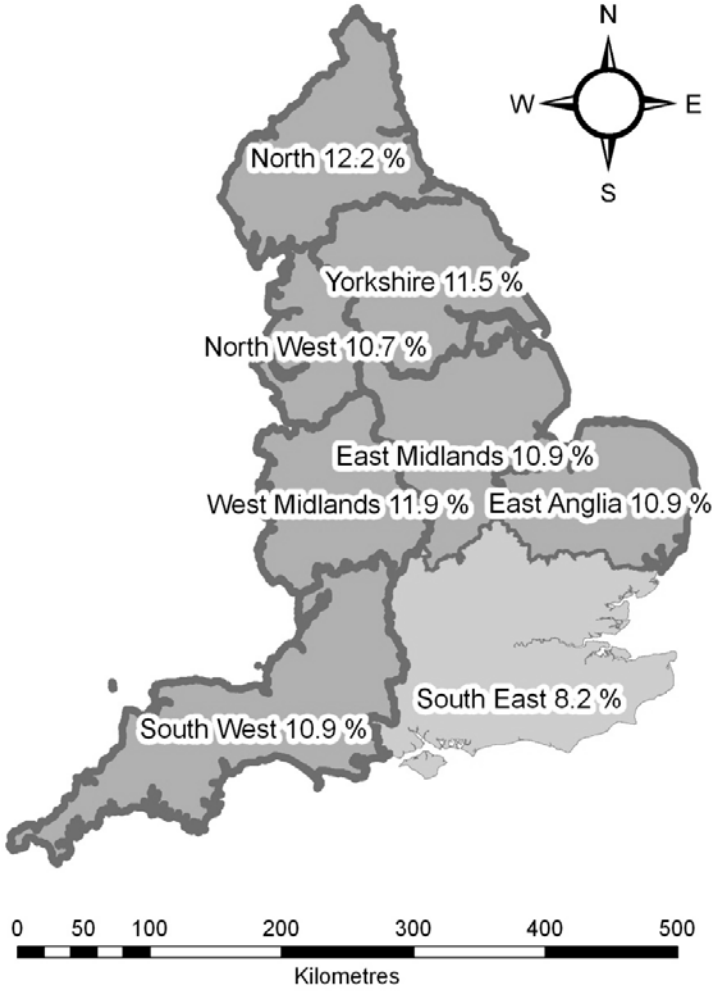


Figure 6-20: Regional inequalities in high to low class social mobility among men, by 1991 Standard Region (Created by the author using the ONS LS)



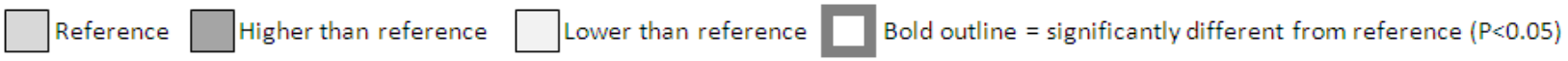
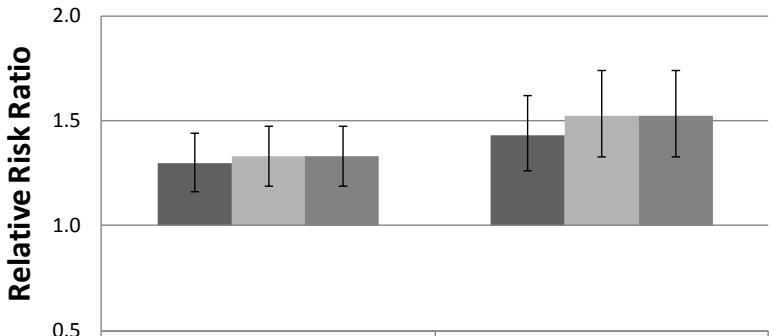


Figure 6-21: Deprivation inequalities in social mobility, defined by transitions in social class: the likelihood of men in high social class occupations in 1991 moving to low class occupations by 2001 (Created by the author using the ONS LS)



	Moderate	High
Model 2	1.297	1.431
Model 3	1.329	1.525
Model 4	1.329	1.523

Relative Risk Ratios and 95 % confidence intervals for tertiles 2 (moderately deprived) and 3 (highly deprived) compared to the tertile 1 (affluent). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

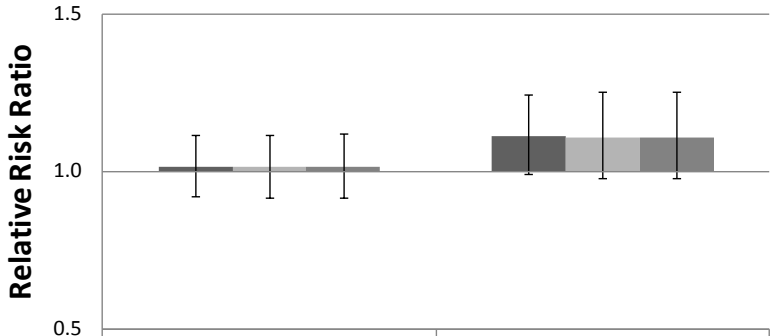
Models were adjusted as follows:

Model 2: all individual characteristics, region of residence, plus the Townsend deprivation index for CAS wards

Model 3: as Model 2, plus the percentage of non-White concentration for CAS wards

Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 6-22: Deprivation inequalities in social mobility, defined by transitions in social class: the likelihood of men in high social class occupations in 1991 moving to middle class occupations by 2001 (Created by the author using the ONS LS)



	Moderate	High
Model 2	1.014	1.112
Model 3	1.013	1.107
Model 4	1.013	1.107

Relative Risk Ratios and 95 % confidence intervals for tertiles 2 (moderately deprived) and 3 (highly deprived) compared to the tertile 1 (affluent). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

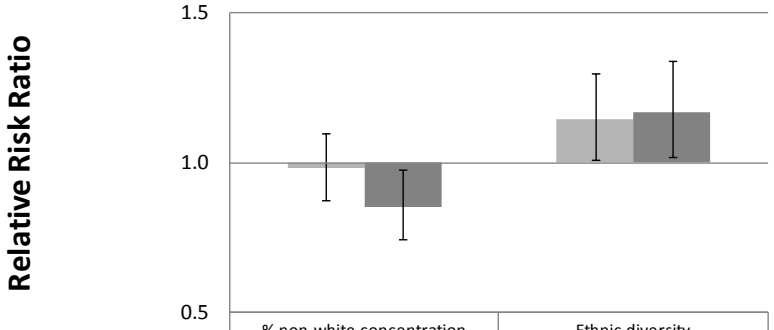
Models were adjusted as follows:

Model 2: all individual characteristics, region of residence, plus the Townsend deprivation index for CAS wards

Model 3: as Model 2, plus the percentage of non-White concentration for CAS wards

Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

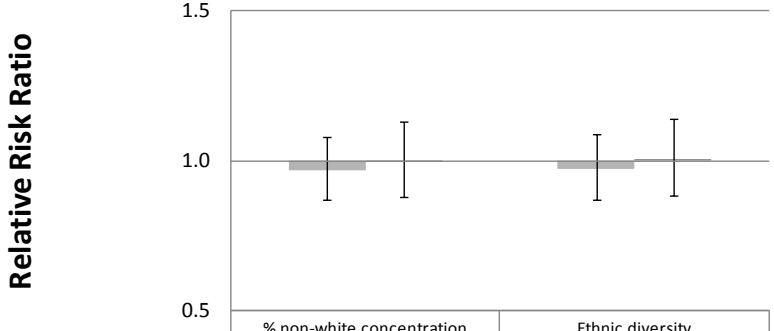
Figure 6-23: Inequalities in social mobility by neighbourhood non-White concentration and ethnic diversity, defined by transitions in social class: the likelihood of men in high social class occupations in 1991 moving to low class occupations by 2001 (Created by the author using the ONS LS)



	% non-white concentration	Ethnic diversity
Moderate concentration / diversity	0.983	1.146
High concentration / Low Diversity	0.853	1.168

Relative Risk Ratios and 95 % confidence intervals for tertiles 2 (moderately non-White concentrated or moderately diverse) and 3 (highly non-White concentrated or least diverse) compared to the tertile 1 (least non-White concentrated or most ethnically diverse). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Figure 6-24: Inequalities in social mobility by neighbourhood non-White concentration and ethnic diversity, defined by transitions in social class: the likelihood of men in high social class occupations in 1991 moving to middle class occupations by 2001 (Created by the author using the ONS LS)



	% non-white concentration	Ethnic diversity
Moderate concentration / diversity	0.969	0.974
High concentration / Low Diversity	0.996	1.005

Relative Risk Ratios and 95 % confidence intervals for tertiles 2 (moderately non-White concentrated or moderately diverse) and 3 (highly non-White concentrated or least diverse) compared to the tertile 1 (least non-White concentrated or most ethnically diverse). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Summary of Study 3

The purpose of this study was to examine intragenerational downward social mobility among men, who were in high class occupations in 1991. In general, ethnic minority men were more likely to experience downward mobility compared to White men. However, the only significant ethnic inequality was found between Bangladeshi and White men, in the likelihood of moving from high to middle class occupations.

Downward social mobility among men was found to vary regionally. This was especially for men moving from high to low class occupations, with significantly higher chances among men in every region outside the South East of England.

In terms of high to middle class mobility, neighbourhood characteristics had little influence after controlling for individual factors. However, a significantly positive association between deprivation and downward mobility was found for men moving from high to low class occupations. Weak associations were also reported for the ethnic diversity, but neighbourhood deprivation was a more important predictor for downward social mobility among men.

6.4.4 Study 4: Low to middle or high social class occupation among women

Table 6-5 shows the percentage of socially mobile among women in low social class occupations in 1991. The 'Total' column indicates the total number of women in low social class occupations in the 1991 sample, with the % column identifying the percentage of those women who experienced social mobility (transition to middle or high social classes) between 1991 and 2001. Relative Risk Ratios indicate the statistical likelihood that a woman in a low social class occupation in 1991 will move to a middle or high social class occupation by 2001, compared to the likelihood of remaining in a low social class occupation.

Relative Risk Ratios are derived from univariate multinomial logistic regression models, adjusting for the clustering of individuals within wards. 95% confidence intervals indicate the reliability of the Relative Risk Ratios and p-values suggest the level of significance, with $p<0.05$ considered statistically significant and highlighted in bold

Few significant ethnic inequalities were observed. Chinese women were three times (BLANKED %) more likely than White women (16.19%) to move from low to middle class occupations by 2001. However, the number of Chinese women is quite small (n=24) and therefore may not be reliable. Black Caribbean women were 1.68 times (23.94%) more likely to move from low to high class occupations than White women (16.69%), but Indian women were significantly less likely (9.94%). Women over 30 years old were significantly more likely to remain in low social class occupations compared to those aged 18-29. Women who were single were more likely to move from low to middle or high social class occupations compared to those who were in a couple in 1991 and 2001.

Those who had qualifications throughout, or gained qualifications by 2001, were significantly more likely to move to middle or high class occupations compared to those with no qualifications throughout. Women homeowners were significantly more likely to be socially mobile compared to those who were in socially rented household tenures. However, women who rented privately were more likely to move to middle or high class occupations than those who owned their homes. No difference was found in the percentage of women moving from low to middle class occupations according to whether they were born in the UK (16.12%) or born overseas (16.92%). However, women born overseas (14.40%) were significantly less likely to move from low to high class occupations than those born in the UK (16.75%).

Women living in more deprived neighbourhoods were more likely to stay in low social class occupations between 1991 and 2001, compared to those in more affluent areas. In more non-White concentrated and more ethnically diverse neighbourhoods, women were significantly more likely to move from low to

middle or high class occupations. Compared to women in the South East, women in any other region of England were less likely to move from low to middle or to high class occupations between 1991 and 2001.

Table 6.5: Social mobility among women between 1991 and 2001, defined by transitions in social class: the likelihood of women in low social class occupations in 1991 moving to a middle or high social class occupation by 2001

Women: Low to	Total	% Middle	RRR	95% CI		p	% High	RRR	95% CI		p
Ethnic Group											
White	16919	16.19	ref				16.69	ref			
Indian	513	14.42	0.78	0.60	1.02	0.065	9.94	**0.53**	**0.40**	**0.72**	**<0.001**
Pakistani	40	12.50	0.77	0.30	2.00	0.590	20.00	1.20	0.55	2.65	0.647
Bangladeshi	14	BLANKED	0.76	0.17	3.41	0.715	0.00	0.37	0.05	2.86	0.340
Black Caribbean	142	BLANKED	1.22	0.76	1.94	0.413	BLANKED	**1.68**	**1.14**	**2.49**	**0.009**
Black African	61	BLANKED	0.98	0.47	2.05	0.965	19.67	1.17	0.59	2.36	0.650
Chinese	24	BLANKED	**3.12**	**1.31**	**7.40**	**0.010**	BLANKED	1.01	0.29	3.60	0.982
Other	165	16.97	1.06	0.70	1.60	0.790	18.18	1.15	0.77	1.71	0.495
Total	17878	16.18					16.57				
Age Group											
18 to 29	6026	19.68	ref				22.09	ref			
30 to 39	**5799**	**16.54**	**0.73**	**0.66**	**0.80**	**<0.001**	**16.49**	**0.66**	**0.60**	**0.72**	**<0.001**
40 to 54	**6053**	**12.34**	**0.48**	**0.43**	**0.53**	**<0.001**	**11.17**	**0.39**	**0.35**	**0.43**	**<0.001**
Total	17878	16.18					16.57				
Couple Status											
Couple: 1991 & 2001	9916	15.14	ref				14.15	ref			
Single: 1991 & 2001	**3945**	**17.03**	**1.28**	**1.15**	**1.41**	**<0.001**	**21.04**	**1.67**	**1.51**	**1.85**	**<0.001**
Couple: 1991; Single: 2001	1899	16.22	1.12	0.98	1.29	0.095	**16.06**	**1.19**	**1.04**	**1.37**	**0.013**
Single: 1991; Couple: 2001	**2118**	**19.41**	**1.49**	**1.32**	**1.69**	**<0.001**	**20.07**	**1.63**	**1.44**	**1.85**	**<0.001**
Total	17878	16.18					16.57				
Qualifications											
None at all	6694	9.29	ref				7.17	ref			
Qualifications: 1991 & 2001	**429**	**18.18**	**5.78**	**4.31**	**7.76**	**<0.001**	**53.38**	**21.79**	**17.16**	**27.67**	**<0.001**
None: 1991; Gained: 2001	**10751**	**20.38**	**3.14**	**2.85**	**3.45**	**<0.001**	**20.97**	**4.10**	**3.69**	**4.56**	**<0.001**
Total	17878	16.17					16.57				
Household Tenure											
Owner	13677	17.05	ref				16.78	ref			
Private renter	**826**	**18.89**	**1.30**	**1.07**	**1.57**	**0.008**	**25.54**	**1.72**	**1.44**	**2.05**	**<0.001**
Social renter	**3324**	**12.00**	**0.63**	**0.56**	**0.70**	**<0.001**	**13.30**	**0.70**	**0.63**	**0.78**	**<0.001**
Total	17878	16.18					16.57				
International Migration											
Born in the UK	16572	16.12	ref				16.75	ref			
Born overseas	1306	16.92	1.01	0.87	1.19	0.860	**14.40**	**0.83**	**0.71**	**0.98**	**0.029**
Total	17878	16.18					16.57				
Internal Migration											
Non-mover	9569	13.53	ref				13.47	ref			
Mover	**8304**	**19.23**	**1.71**	**1.57**	**1.85**	**<0.001**	**20.12**	**1.79**	**1.65**	**1.94**	**<0.001**
Total	17879	16.18					16.57				

Deprivation											
Low	5306	19.17	ref				18.22	ref			
Moderate	**6335**	**15.74**	**0.75**	**0.68**	**0.83**	**<0.001**	**15.56**	**0.78**	**0.70**	**0.86**	**<0.001**
High	**6074**	**13.96**	**0.65**	**0.58**	**0.72**	**<0.001**	**15.79**	**0.77**	**0.70**	**0.86**	**<0.001**
Total	17878	16.18					16.57				
% Non-White											
Low	6746	14.97	ref				15.00	ref			
Moderate	**5940**	**16.80**	**1.18**	**1.07**	**1.31**	**0.001**	**16.70**	**1.17**	**1.06**	**1.30**	**0.002**
High	**5029**	**16.98**	**1.22**	**1.10**	**1.36**	**<0.001**	**18.06**	**1.30**	**1.17**	**1.44**	**<0.001**
Total	17878	16.18					16.57				
Ethnic diversity											
High	5031	16.97	ref				18.09	ref			
Moderate	5945	16.82	0.97	0.87	1.08	0.539	**16.65**	**0.90**	**0.81**	**1.00**	**0.045**
Low	**6739**	**14.96**	**0.82**	**0.74**	**0.91**	**<0.001**	**15.02**	**0.77**	**0.69**	**0.85**	**<0.001**
Total	17878	16.18					16.57				
Standard Region											
South East	5267	18.38	ref				19.76	ref			
North	**1301**	**13.68**	**0.64**	**0.54**	**0.77**	**<0.001**	**14.60**	**0.64**	**0.53**	**0.77**	**<0.001**
Yorkshire	**2235**	**15.03**	**0.74**	**0.64**	**0.85**	**<0.001**	**16.33**	**0.75**	**0.66**	**0.86**	**<0.001**
East Midlands	**1833**	**15.28**	**0.73**	**0.63**	**0.85**	**<0.001**	**14.40**	**0.65**	**0.56**	**0.76**	**<0.001**
East Anglia	781	16.77	0.83	0.68	1.02	0.075	**14.60**	**0.67**	**0.53**	**0.84**	**0.001**
South West	**1772**	**15.52**	**0.76**	**0.65**	**0.89**	**0.001**	**15.35**	**0.70**	**0.60**	**0.81**	**<0.001**
West Midlands	**2232**	**14.83**	**0.71**	**0.62**	**0.83**	**<0.001**	**14.65**	**0.66**	**0.57**	**0.76**	**<0.001**
North West	**2454**	**15.97**	**0.79**	**0.69**	**0.90**	**0.001**	**15.89**	**0.73**	**0.64**	**0.84**	**<0.001**
Total	17879	16.17					16.57				

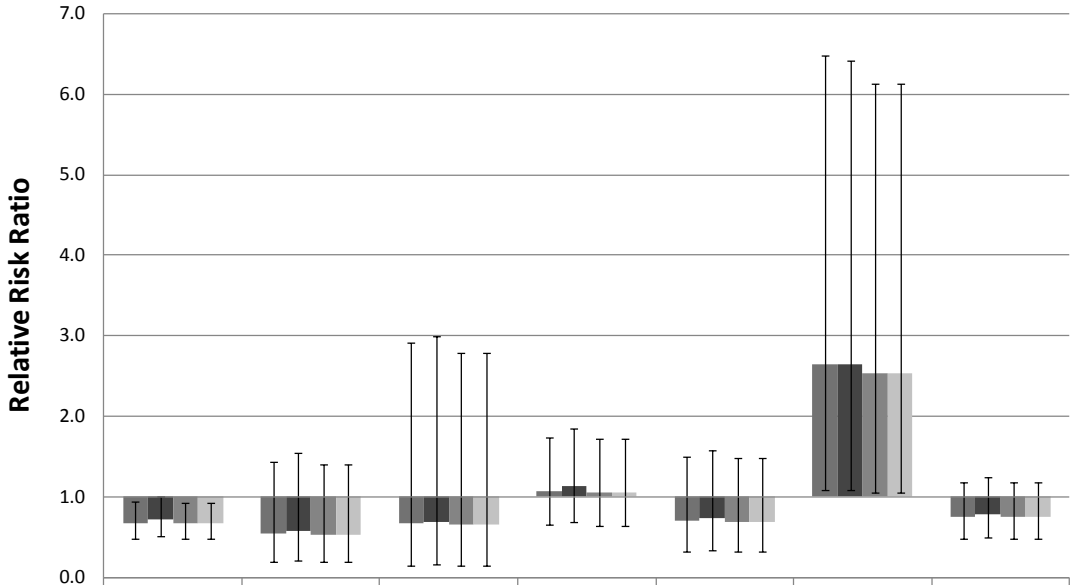
Source: ONS LS, created by the Author

Figure 6-25 shows the ethnic inequalities among women in the likelihood of moving from low to middle class occupations, compared to the likelihood of remaining in low social class occupations in 1991 and 2001. Indian women were less likely to move to middle class occupations than White women, significantly before and after controlling for neighbourhood characteristics. Pakistani, Bangladeshi and Black African women were also less likely, though not statistically significant. Chinese women were significantly more likely than White women to move from low to middle class occupations by 2001, before and after adjusting for neighbourhood characteristics.

Figure 6-26 shows the ethnic inequalities in low to high class mobility among women between 1991 and 2001. Indian women were significantly less likely to be socially mobile than White women. This lower likelihood among Indian women remained significant after controlling for neighbourhood characteristics.

Bangladeshi and Black African women were also less likely to move from low to high class occupations, but Black Caribbean women were more likely than White women. However, none of these ethnic inequalities were statistically significant.

Figure 6-25: Ethnic inequalities in social mobility, defined by transitions in social class: the likelihood of women in low social class occupations in 1991 moving to middle class occupations by 2001 (Created by the author using the ONS LS)



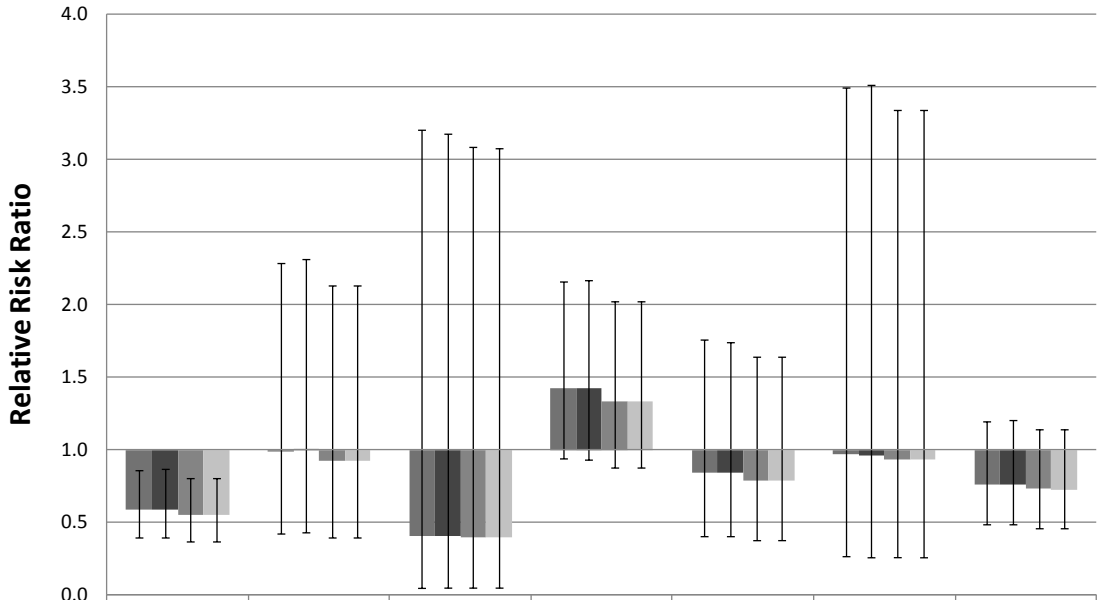
	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Chinese	Other
Model 1	0.679	0.542	0.672	1.068	0.699	2.650	0.756
Model 2	0.725	0.582	0.688	1.137	0.735	2.650	0.793
Model 3	0.670	0.534	0.657	1.058	0.690	2.536	0.755
Model 4	0.670	0.534	0.657	1.058	0.690	2.535	0.755

Relative Risk Ratios and 95 % confidence intervals for each ethnic group compared to the White group. 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Models were adjusted as follows:

Model 1: all individual characteristics, plus region of residence
Model 2: as Model 1, plus the Townsend deprivation index for CAS wards
Model 3: as Model 2, plus the percentage of non-White concentration for CAS wards
Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 6-26: Ethnic inequalities in social mobility, defined by transitions in social class: the likelihood of women in low social class occupations in 1991 moving to high class occupations by 2001 (Created by the author using the ONS LS)



	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Chinese	Other
Model 1	0.588	0.991	0.410	1.425	0.847	0.973	0.765
Model 2	0.594	1.004	0.413	1.429	0.842	0.967	0.767
Model 3	0.551	0.929	0.397	1.335	0.793	0.934	0.731
Model 4	0.550	0.928	0.396	1.333	0.792	0.934	0.730

Relative Risk Ratios and 95 % confidence intervals for each ethnic group compared to the White group. 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Models were adjusted as follows:

Model 1: all individual characteristics, plus region of residence

Model 2: as Model 1, plus the Townsend deprivation index for CAS wards

Model 3: as Model 2, plus the percentage of non-White concentration for CAS wards

Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 6-27 shows geographical variation in the likelihood of women in low class occupations moving to the middle class by 2001. The South East is coloured orange. Regions with higher percentages of social mobility are darker. Regions with smaller percentages of social mobility are lighter. Regions with thick boundaries indicate a percentage that is significantly different to the South East ($p<0.05$). Significance levels are calculated from multinomial logit regression, adjusting for individual factors, deprivation and

non-White concentration. A clear north-south gradient was observed. Compared to the South East, women in almost every other region were significantly less likely to move from low to middle class occupations. Women in the North were the least likely to be socially mobile.

Figure 6-28 shows a similar pattern of inequality, this time for women in low class occupations and their chances of moving to the high class by 2001. 19.8% of women in low class occupations in the South East moved to the high class. In comparison, only 14.6% of women in the North, West Midlands and East Anglia achieved similar upward mobility.

Figure 6-29 shows the effect of deprivation on the likelihood of low to middle class mobility among women between 1991 and 2001. Women in more deprived neighbourhoods were significantly less likely to move to middle class occupations, before and after taking into account the non-White concentration and ethnic diversity of their neighbourhoods.

Figure 6-30 shows the effect of deprivation on low to high social class mobility among women. Deprivation had a significantly negative effect on the chances of being upwardly mobile, with increased significance after controlling for neighbourhood ethnic diversity.

Figure 6-31 shows the effect of neighbourhood ethnic diversity on the likelihood of women in low class occupations moving to the middle class, controlling for individual, region and deprivation factors. Women in more non-White concentrated neighbourhoods were significantly more likely to be socially mobile. Women in less diverse neighbourhoods were significantly less likely to be socially mobile.

Figure 6-32 shows the effect of neighbourhood ethnic diversity on the likelihood of women in low class occupations moving to the high class, controlling for individual, region and deprivation factors. Women in more non-White concentrated neighbourhoods were significantly more likely to be socially mobile. Women in less diverse neighbourhoods were significantly less likely to be socially mobile.

Figure 6-27: The likelihood of women in low class occupations in 1991 moving to the middle class by 2001, by 1991 Standard Regions (Created by the author using the ONS LS)

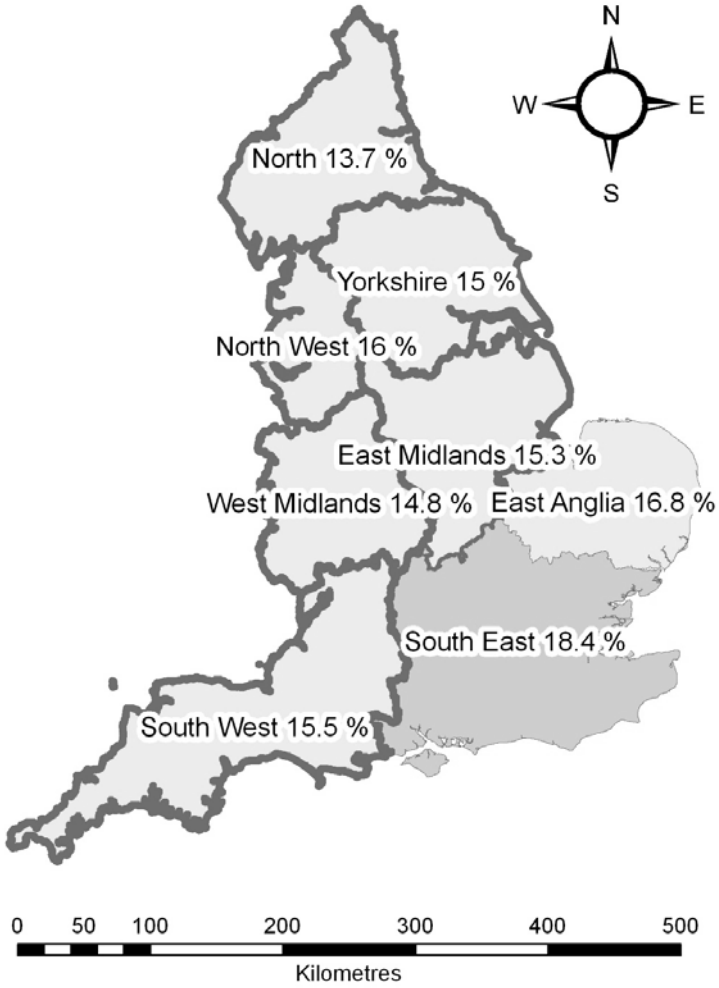
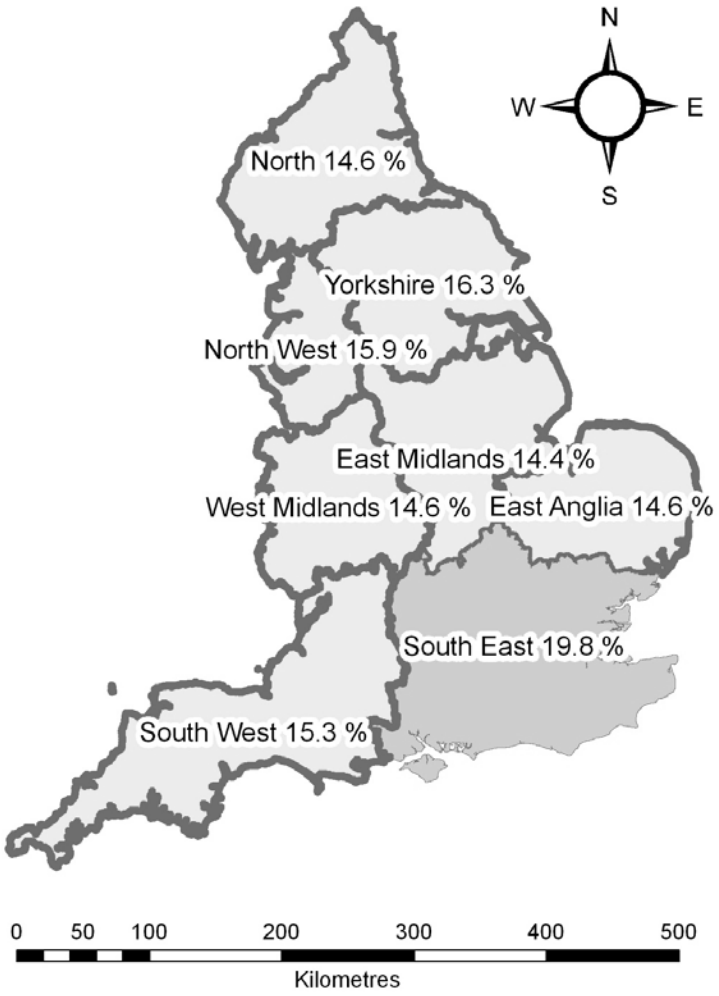


Figure 6-28: The likelihood of women in low class occupations in 1991 moving to the high class by 2001, by 1991 Standard Regions (Created by the author using the ONS LS)



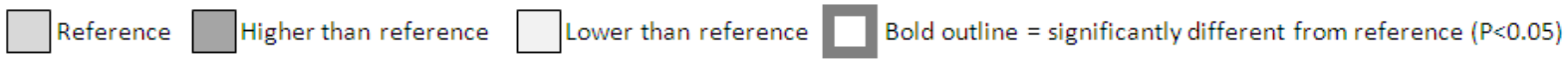
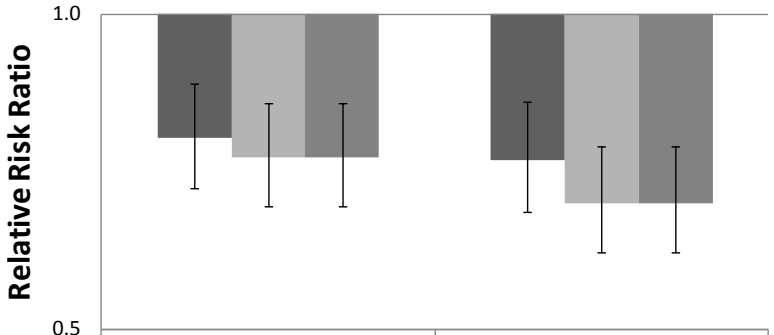


Figure 6-29: Deprivation inequalities in social mobility, defined by transitions in social class: the likelihood of women in low social class occupations in 1991 moving to middle class occupations by 2001 (Created by the author using the ONS LS)



	Moderate	High
Model 2	0.803	0.769
Model 3	0.773	0.700
Model 4	0.773	0.701

Relative Risk Ratios and 95 % confidence intervals for tertiles 2 (moderately deprived) and 3 (highly deprived) compared to the tertile 1 (affluent). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

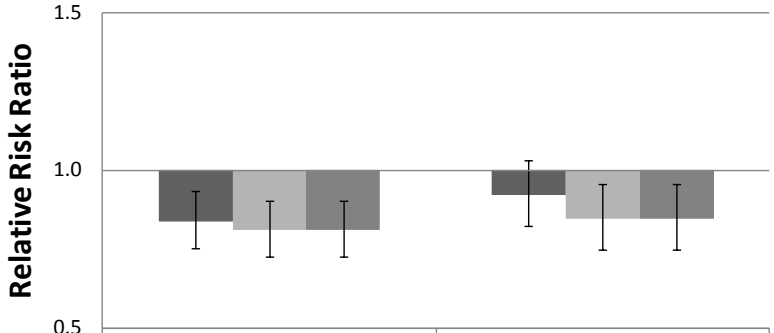
Models were adjusted as follows:

Model 2: all individual characteristics, region of residence, plus the Townsend deprivation index for CAS wards

Model 3: as Model 2, plus the percentage of non-White concentration for CAS wards

Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 6-30: Deprivation inequalities in social mobility, defined by transitions in social class: the likelihood of women in low social class occupations in 1991 moving to high class occupations by 2001 (Created by the author using the ONS LS)



	Moderate	High
Model 2	0.838	0.922
Model 3	0.811	0.847
Model 4	0.810	0.846

Relative Risk Ratios and 95 % confidence intervals for tertiles 2 (moderately deprived) and 3 (highly deprived) compared to the tertile 1 (affluent). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

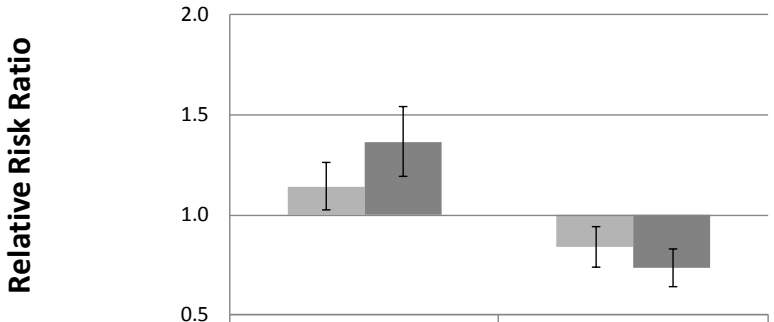
Models were adjusted as follows:

Model 2: all individual characteristics, region of residence, plus the Townsend deprivation index for CAS wards

Model 3: as Model 2, plus the percentage of non-White concentration for CAS wards

Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

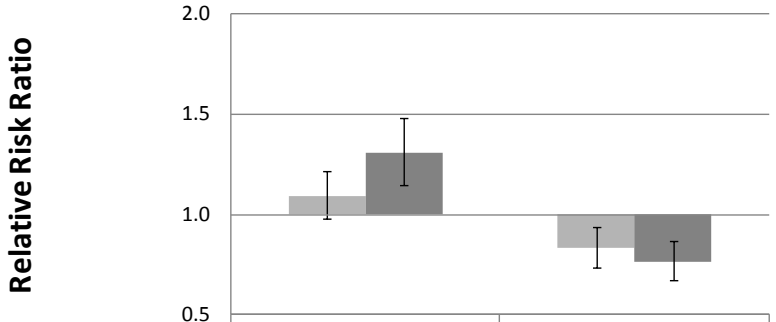
Figure 6-31: Inequalities in social mobility by neighbourhood non-White concentration and ethnic diversity, defined by transitions in social class: the likelihood of women in low social class occupations in 1991 moving to middle class occupations by 2001 (Created by the author using the ONS LS)



	% non-white concentration	Ethnic diversity
Moderate concentration / diversity	1.142	0.840
High concentration / Low Diversity	1.361	0.734

Relative Risk Ratios and 95 % confidence intervals for tertiles 2 (moderately non-White concentrated or moderately diverse) and 3 (highly non-White concentrated or least diverse) compared to the tertile 1 (least non-White concentrated or most ethnically diverse). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Figure 6-32: Inequalities in social mobility by neighbourhood non-White concentration and ethnic diversity, defined by transitions in social class: the likelihood of women in low social class occupations in 1991 moving to high class occupations by 2001 (Created by the author using the ONS LS)



	% non-white concentration	Ethnic diversity
Moderate concentration / diversity	1.094	0.833
High concentration / Low Diversity	1.306	0.764

Relative Risk Ratios and 95 % confidence intervals for tertiles 2 (moderately non-White concentrated or moderately diverse) and 3 (highly non-White concentrated or least diverse) compared to the tertile 1 (least non-White concentrated or most ethnically diverse). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Summary of Study 4

In this study, I investigated trends in upward social mobility among women in low class occupations in 1991. I found statistically significant ethnic inequalities in social mobility after controlling for other individual factors, neighbourhood characteristics and region of residence in 1991. Indian women were significantly less likely to move from low to middle class occupations than White women, and Chinese women were significantly more likely. Indian women were also significantly less likely to move from low to high class occupations than White women.

Upward mobility also varied regionally. Women in almost every other region were significantly less likely to be socially mobile compared to those who were resident in the South East. Meanwhile, at the neighbourhood scale, women in more deprived neighbourhoods were less likely to achieve upward social mobility. In comparison, the ethnic diversity of neighbourhoods had little effect.

6.4.5 Study 5: Middle to high or low social class occupations among women

Table 6-6 shows the percentage of social mobility among women who were in middle class occupations in 1991, with moves to low or high class occupations by 2001. The 'Total' column indicates the total number of women in middle social class occupations in the 1991 sample, with the % column identifying the percentage of those women who experienced social mobility (transition to high or low social classes) between 1991 and 2001. Relative Risk Ratios indicate the statistical likelihood that a woman in a middle social class occupation in 1991 moved to a high or low social class occupation by 2001, compared to likelihood of remaining in a middle social class occupation. Relative Risk Ratios are derived from univariate multinomial logistic regression models, adjusting for the clustering of individuals within wards.

95% confidence intervals indicate the reliability of the Relative Risk Ratios and p-values suggest the level of significance, with $p<0.05$ considered statistically significant and highlighted in bold

Indian women were less likely to move from middle to high class occupations (26.5%) than White women (34.3%). No other significant ethnic inequalities were observed, though sample sizes were small except for the White, Indian and Black Caribbean groups. Women over 30 years old were less likely to move from middle to high class occupations (33.72% for 30-39 years, 26.15% for 40-54 years) than those aged 18-29 (40.24%). The likelihood of moving from middle to low class occupations was not significantly related to women's ages. Women who were single in 1991 and 2001 were significantly more likely to move from middle to high class occupations than those who were in a couple throughout. In comparison, women who became single by 2001 were more likely to move from middle to low class occupations (17.29%) than those who were in a couple throughout (17.32%).

Women with qualifications, or who gained some by 2001, were more likely to move from middle to high class occupations and less likely to move from middle to low class occupations by 2001. Women in privately rented household tenure were more likely to move from middle to high class occupations (40.47%) than those who owned their homes (34.05%). However, women in socially rented tenure were more likely to move from middle to low class occupations (23.48%) than homeowners (15.28%). Women born overseas were less likely to move from middle to high class occupations (31.42%) than those born in the UK (34.38%), but migrant generation made no difference for middle to low class transitions.

Women who moved within the UK were more socially mobile (middle to high and middle to low class occupations) than those who did not move. Moves from middle to high class occupations were not significantly influenced by neighbourhood deprivation, but women in more deprived neighbourhoods were significantly more likely to move from middle to low class occupations (16.26%) than those in more affluent areas (14.68%).

Women in more non-White concentrated neighbourhoods were significantly more likely to move from middle to high class occupations (35.96%) than those in White concentrated areas (32.70%). Non-White concentration made no difference for middle to low class transitions. Women in the least diverse neighbourhoods were less likely to move from middle to high class occupations (32.70%) than those in more diverse areas (35.94%). Neighbourhood ethnic diversity had no effect on middle to low class transitions among women. Women in the West Midlands were significantly less likely (32.05%) than those in the South East (35.45%) to move from middle to high class occupations. Meanwhile, women in East Anglia (20%) and the South West (19.2%) were more likely to move from middle to low class occupations than those in the South East (14.6%).

Table 6.6: Social mobility among women between 1991 and 2001, defined by transitions in social class: the likelihood of women in middle social class occupations in 1991 moving to a low or high social class occupation by 2001

Women: Middle to	Total	% High	RRR	95% CI		p	% Low	RRR	95% CI		p
Ethnic Group											
White	17034	34.30	ref				15.94	ref			
Indian	366	26.50	**0.65**	**0.51**	**0.83**	**<0.001**	13.93	0.74	0.55	1.01	0.056
Pakistani	61	26.23	0.65	0.36	1.16	0.142	BLANKED	0.78	0.37	1.63	0.511
Bangladeshi	BLANKED	0.00	0.48	0.05	4.66	0.530	BLANKED	2.08	0.35	12.48	0.421
Black Caribbean	211	40.76	1.26	0.94	1.69	0.123	12.80	0.86	0.57	1.30	0.480
Black African	40	47.50	1.90	0.91	3.98	0.090	BLANKED	1.68	0.67	4.22	0.267
Chinese	53	20.75	0.55	0.28	1.10	0.092	24.53	1.40	0.74	2.66	0.301
Other	204	35.78	1.09	0.81	1.47	0.574	17.16	1.11	0.75	1.63	0.609
Total	17975	34.18					15.92				
Age Group											
18 to 29	7318	40.24	ref				14.89	ref			
30 to 39	**5457**	**33.72**	**0.75**	**0.69**	**0.81**	**<0.001**	16.20	0.97	0.88	1.08	0.606
40 to 54	**5200**	**26.15**	**0.51**	**0.47**	**0.55**	**<0.001**	17.04	0.90	0.82	1.00	0.053
Total	17975	34.19					15.91				
Couple Status											
Couple: 1991 & 2001	8989	29.29	ref				17.32	ref			
Single: 1991 & 2001	**4360**	**39.33**	**1.53**	**1.41**	**1.65**	**<0.001**	13.76	0.91	0.82	1.01	0.077
Couple: 1991; Single: 2001	**1700**	**36.82**	**1.47**	**1.31**	**1.65**	**<0.001**	**17.29**	**1.16**	**1.01**	**1.35**	**0.040**
Single: 1991; Couple: 2001	**2926**	**40.02**	**1.58**	**1.45**	**1.74**	**<0.001**	13.98	0.92	0.81	1.05	0.222
Total	17975	34.19					15.91				
Qualifications											
None at all	2180	18.53	ref				28.21	ref			

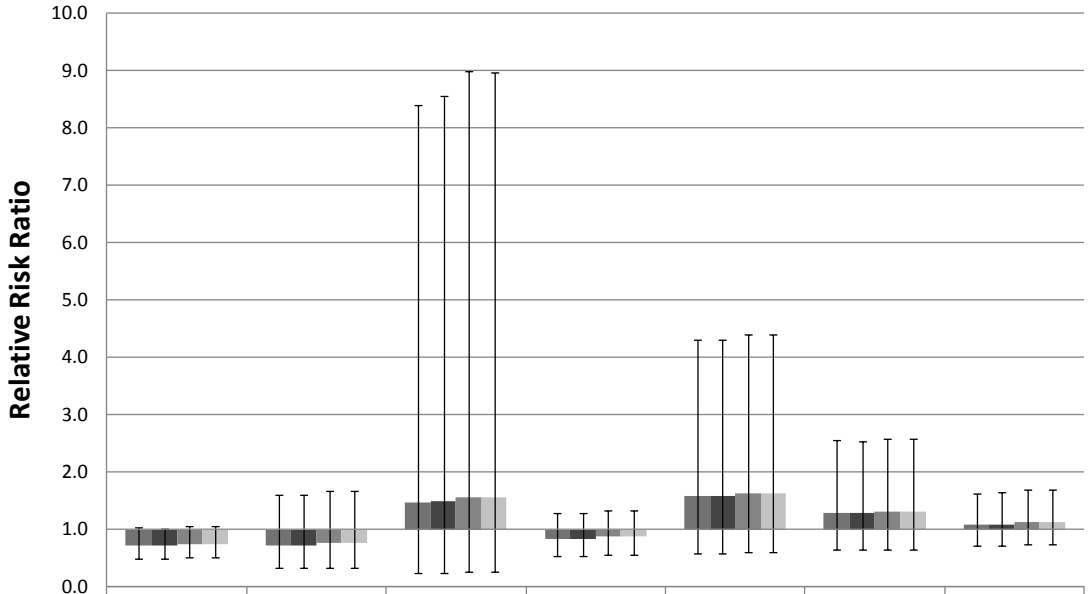
Qualifications: 1991 & 2001	**1213**	**57.71**	**4.66**	**3.95**	**5.51**	**<0.001**	**6.68**	**0.35**	**0.27**	**0.46**	**<0.001**
None: 1991; Gained: 2001	**14577**	**34.57**	**1.96**	**1.74**	**2.21**	**<0.001**	**14.83**	**0.55**	**0.50**	**0.62**	**<0.001**
Total	17976	34.19					15.92				
Household Tenure											
Owner	15666	34.05	ref				15.28	ref			
Private renter	**897**	**40.47**	**1.35**	**1.17**	**1.56**	**<0.001**	15.27	1.14	0.94	1.39	0.193
Social renter	1363	31.84	1.06	0.93	1.20	0.409	**23.48**	**1.75**	**1.51**	**2.02**	**<0.001**
Total	17975	34.19					15.91				
International Migration											
Born in the UK	16791	34.38	ref				15.94	ref			
Born overseas	**1184**	**31.42**	**0.87**	**0.76**	**0.99**	**0.032**	15.54	0.92	0.78	1.09	0.343
Total	17975	34.19					15.91				
Internal Migration											
Non-mover	7869	29.09	ref				16.22	ref			
Mover	**10100**	**38.15**	**1.55**	**1.45**	**1.66**	**<0.001**	**15.68**	**1.14**	**1.05**	**1.25**	**0.002**
Total	17975	34.19					15.91				
Deprivation											
Low	6853	34.28	ref				14.68	ref			
Moderate	6194	34.07	1.04	0.96	1.12	0.364	**16.98**	**1.21**	**1.09**	**1.33**	**<0.001**
High	4718	34.12	1.02	0.94	1.11	0.566	**16.26**	**1.14**	**1.02**	**1.27**	**0.016**
Total	17975	34.19					15.91				
% Non-White											
Low	5782	32.70	ref				16.67	ref			
Moderate	6251	33.87	1.05	0.97	1.14	0.229	16.27	0.99	0.89	1.10	0.857
High	**5732**	**35.96**	**1.13**	**1.04**	**1.22**	**0.003**	14.72	0.91	0.82	1.01	0.069
Total	17975	34.19					15.91				
Ethnic diversity											
High	5734	35.94	ref				14.74	ref			
Moderate	6251	33.88	0.93	0.86	1.01	0.080	16.25	1.09	0.98	1.21	0.096
Low	**5780**	**32.70**	**0.89**	**0.82**	**0.96**	**0.004**	16.68	1.10	0.99	1.23	0.071
Total	17975	34.19					15.91				
Standard Region											
South East	7180	35.45	ref				14.60	ref			
North	949	33.61	0.91	0.78	1.06	0.211	14.65	0.95	0.78	1.17	0.652
Yorkshire	1756	33.20	0.93	0.83	1.05	0.251	17.03	1.14	0.99	1.33	0.076
East Midlands	1493	33.02	0.93	0.82	1.04	0.211	16.61	1.14	0.97	1.33	0.110
East Anglia	700	30.71	0.87	0.73	1.05	0.142	**20.00**	**1.39**	**1.13**	**1.70**	**0.002**
South West	1672	33.01	0.97	0.86	1.09	0.598	**19.20**	**1.38**	**1.19**	**1.60**	**<0.001**
West Midlands	**1825**	**32.05**	**0.88**	**0.79**	**0.99**	**0.029**	16.55	1.10	0.95	1.28	0.194
North West	2399	35.56	1.01	0.91	1.12	0.805	15.13	1.04	0.91	1.19	0.534
Total	17974	34.19					15.91				

Source: ONS LS, created by the Author

Figure 6-33 shows the ethnic inequalities in middle to low class mobility among women between 1991 and 2001. Indian, Pakistani and Black Caribbean women were less likely than White women to be downwardly socially mobile. Bangladeshi, Black African and Chinese women were more likely.

However, none of these ethnic inequalities were statistically significant, before or after adjusting for neighbourhood characteristics. Figure 6-34 shows the ethnic inequalities in middle to high class social mobility among women between 1991 and 2001. Indian women were significantly less likely than White women to be socially mobile, before and after controlling for neighbourhood characteristics. Pakistani, Bangladeshi and Chinese women were also less likely, but Black Caribbean and Black African women were more likely. However, aside for Indian women, these ethnic inequalities were not statistically significant.

Figure 6-33: Ethnic inequalities in social mobility, defined by transitions in social class: the likelihood of women in middle social class occupations in 1991 moving to low class occupations by 2001 (Created by the author using the ONS LS)



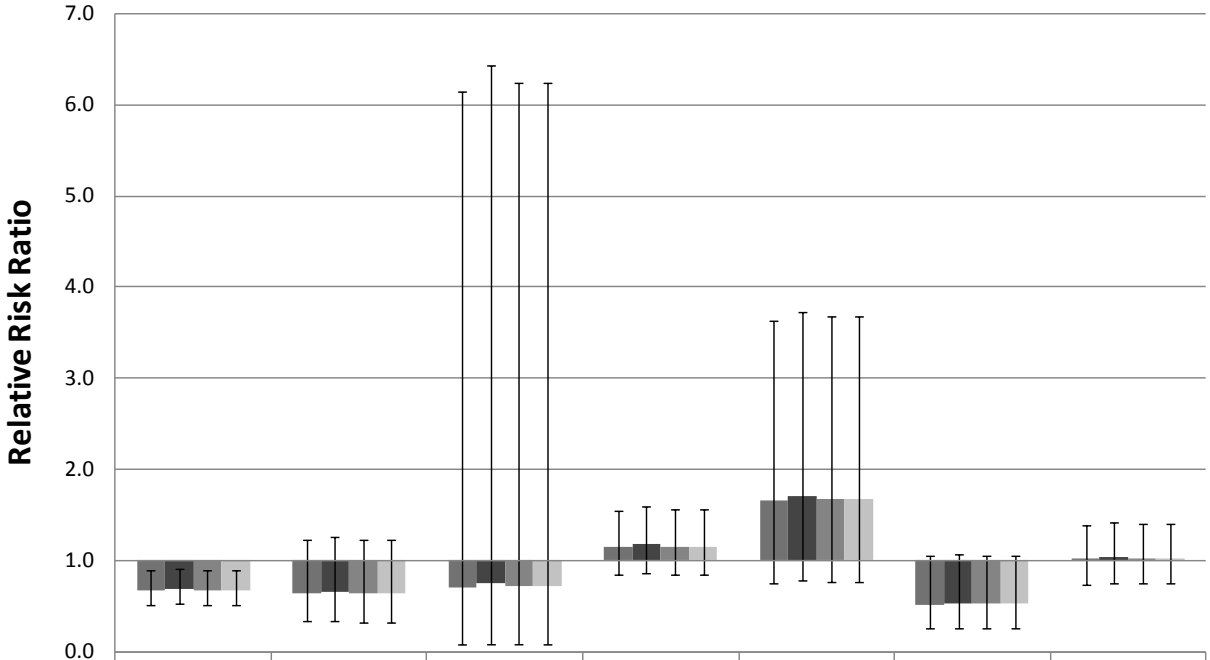
	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Chinese	Other
Model 1	0.722	0.736	1.469	0.846	1.595	1.296	1.089
Model 2	0.719	0.732	1.489	0.848	1.595	1.292	1.095
Model 3	0.742	0.765	1.559	0.878	1.630	1.310	1.124
Model 4	0.742	0.765	1.558	0.877	1.630	1.309	1.124

Relative Risk Ratios and 95 % confidence intervals for each ethnic group compared to the White group. 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Models were adjusted as follows:

Model 1: all individual characteristics, plus region of residence
Model 2: as Model 1, plus the Townsend deprivation index for CAS wards
Model 3: as Model 2, plus the percentage of non-White concentration for CAS wards
Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 6-34: Ethnic inequalities in social mobility, defined by transitions in social class: the likelihood of women in middle social class occupations in 1991 moving to high class occupations by 2001 (Created by the author using the ONS LS)



	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Chinese	Other
Model 1	0.680	0.643	0.712	1.144	1.659	0.522	1.019
Model 2	0.695	0.659	0.746	1.177	1.704	0.532	1.041
Model 3	0.678	0.636	0.724	1.150	1.683	0.523	1.023
Model 4	0.678	0.636	0.724	1.151	1.683	0.524	1.023

Relative Risk Ratios and 95 % confidence intervals for each ethnic group compared to the White group. 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Models were adjusted as follows:

Model 1: all individual characteristics, plus region of residence
Model 2: as Model 1, plus the Townsend deprivation index for CAS wards
Model 3: as Model 2, plus the percentage of non-White concentration for CAS wards
Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 6-35 shows the regional inequalities in social mobility for women moving from middle class occupations in 1991 to high class by 2001. The South East is coloured orange. Regions with higher percentages of social mobility are darker. Regions with smaller percentages of social mobility are lighter. Regions with thick boundaries indicate a percentage that is significantly different to the South East ($p<0.05$). Significance levels are calculated from multinomial logit regression, adjusting for individual factors, deprivation and non-White concentration. These inequalities were not statistically significant,

but there was some small variation observed. For example, compared to women in the South East at 34.3% socially mobile, women in Yorkshire (30%), the East Midlands (30.7%), West Midlands (30.9%) and the South West (30.1%) all appeared a little less likely to achieve upward mobility.

Figure 6-36 shows a different picture of social mobility to that in Figure 6-35. Regional inequalities in downward social mobility were statistically significant. Compared to a rate of 14.6% among women in middle class occupations resident in the South East, women in East Anglia (20%) were significantly more likely to be downwardly mobile. Similar trends were observed in most other regions of England, though not significantly. Figure 6-37 shows the effect of neighbourhood deprivation on social mobility defined as middle to low class occupations among women between 1991 and 2001. Women in moderately deprived neighbourhoods were significantly more downwardly socially mobile compared to those in affluent areas. A positive effect was also found for women in the most deprived neighbourhoods, though this association was not significant. Figure 6-38 shows the effect of deprivation on middle to high class social mobility among women between 1991 and 2001. Deprivation had a significant negative effect on social mobility after controlling for individual characteristics and measures of neighbourhood ethnic diversity.

Figure 6-39 shows the effect of neighbourhood ethnic diversity on the likelihood of women in middle class occupations moving to the low class, controlling for individual, region and deprivation factors. Women in more non-White concentrated neighbourhoods were less likely to be downwardly mobile. Women in less diverse neighbourhoods were more likely to be downwardly mobile. However, neither of these effects of ethnic diversity was statistically significant. Figure 6-40 shows the effect of neighbourhood ethnic diversity on the likelihood of women in middle class occupations moving to the high class, controlling for individual, region and deprivation factors. Women in more non-White concentrated neighbourhoods were significantly more likely to be upwardly socially mobile. Women in less diverse neighbourhoods were significantly less likely to be socially mobile.

Figure 6-35: Regional inequalities in social class mobility among women in middle class occupations in 1991 moving to high class occupations by 2001 (Created by the author using the ONS LS)

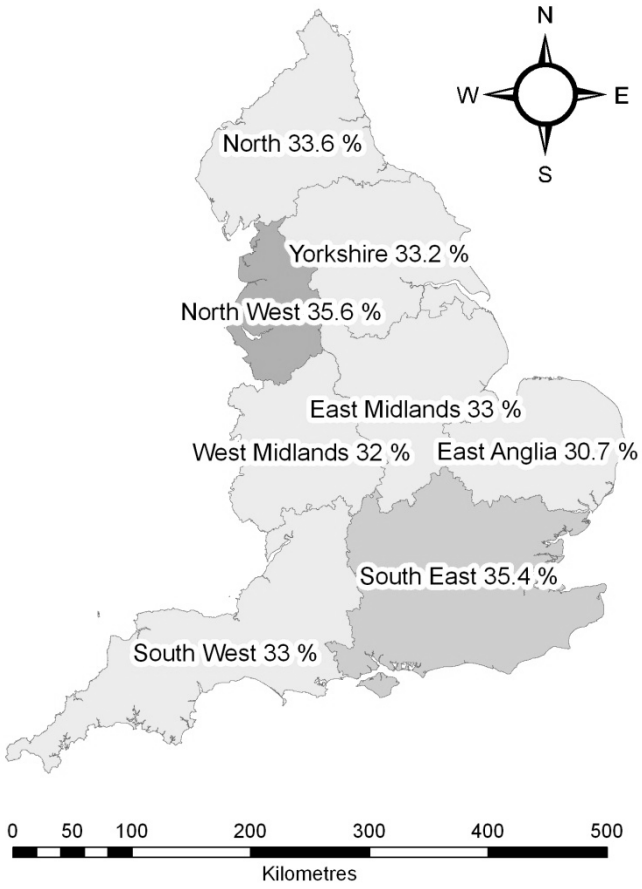
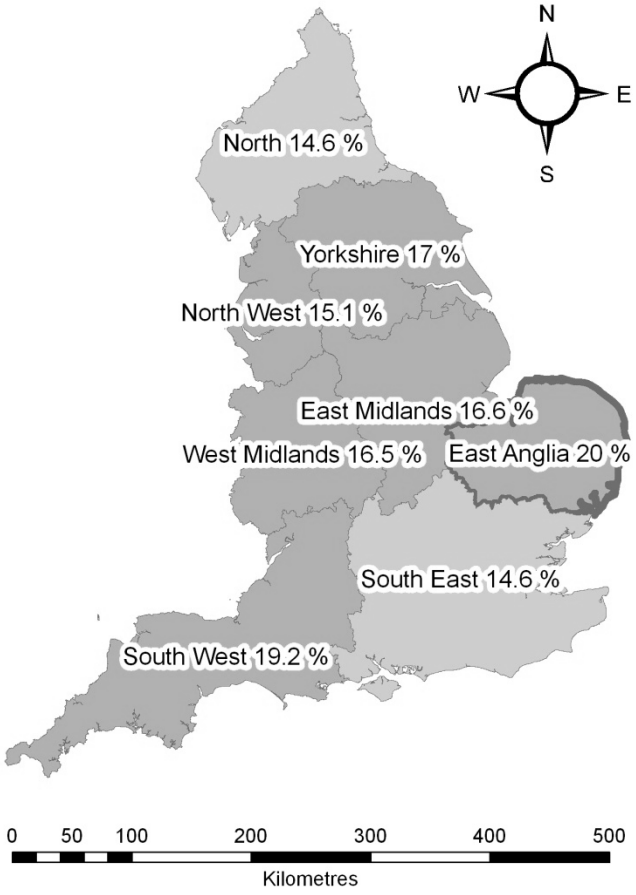


Figure 6-36: Regional inequalities in social class mobility among women in middle class occupations in 1991 moving to low class occupations by 2001 (Created by the author using the ONS LS)



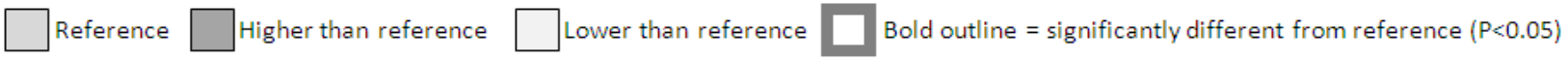
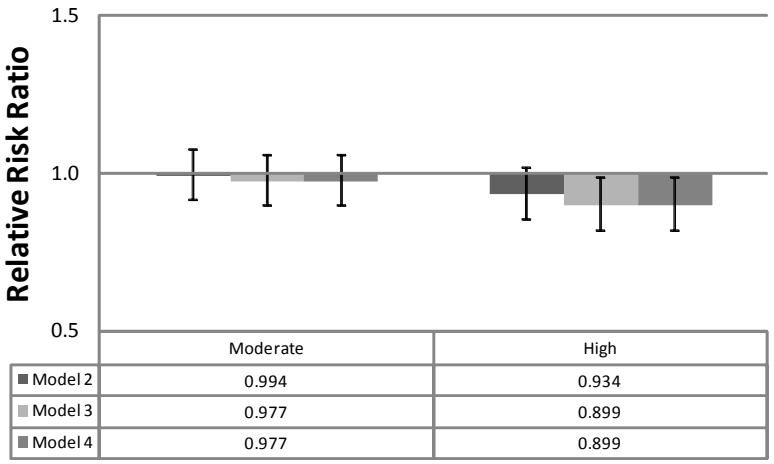


Figure 6-37: Deprivation inequalities in social mobility, defined by transitions in social class: the likelihood of women in middle social class occupations in 1991 moving to low class occupations by 2001 (Created by the author using the ONS LS)



	Moderate	High
Model 2	0.994	0.934
Model 3	0.977	0.899
Model 4	0.977	0.899

Relative Risk Ratios and 95 % confidence intervals for tertiles 2 (moderately deprived) and 3 (highly deprived) compared to the tertile 1 (affluent). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

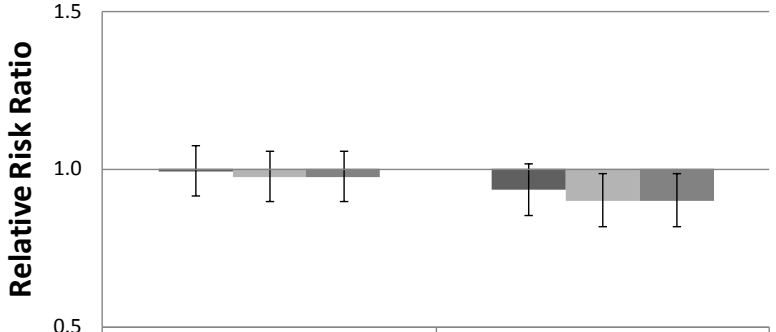
Models were adjusted as follows:

Model 2: all individual characteristics, region of residence, plus the Townsend deprivation index for CAS wards

Model 3: as Model 2, plus the percentage of non-White concentration for CAS wards

Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 6-38: Deprivation inequalities in social mobility, defined by transitions in social class: the likelihood of women in middle social class occupations in 1991 moving to high class occupations by 2001 (Created by the author using the ONS LS)



	Moderate	High
Model 2	0.994	0.934
Model 3	0.977	0.899
Model 4	0.977	0.899

Relative Risk Ratios and 95 % confidence intervals for tertiles 2 (moderately deprived) and 3 (highly deprived) compared to the tertile 1 (affluent). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

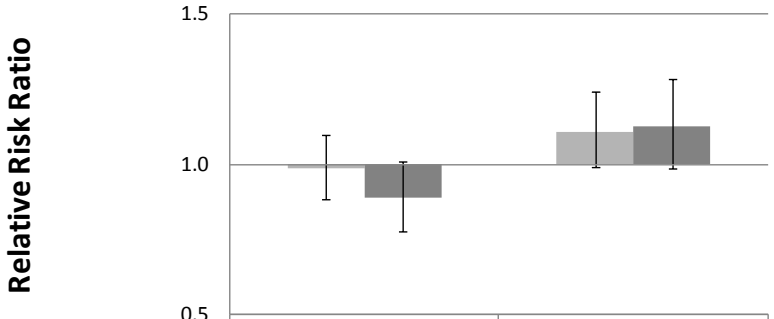
Models were adjusted as follows:

Model 2: all individual characteristics, region of residence, plus the Townsend deprivation index for CAS wards

Model 3: as Model 2, plus the percentage of non-White concentration for CAS wards

Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

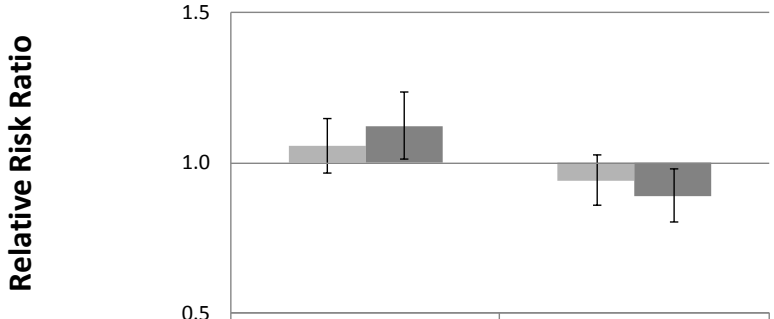
Figure 6-39: Inequalities in social mobility by neighbourhood non-White concentration and ethnic diversity, defined by transitions in social class: the likelihood of women in middle social class occupations in 1991 moving to low class occupations by 2001 (Created by the author using the ONS LS)



	% non-white concentration	Ethnic diversity
Moderate concentration / diversity	0.988	1.110
High concentration / Low Diversity	0.888	1.126

Relative Risk Ratios and 95 % confidence intervals for tertiles 2 (moderately non-White concentrated or moderately diverse) and 3 (highly non-White concentrated or least diverse) compared to the tertile 1 (least non-White concentrated or most ethnically diverse). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Figure 6-40: Inequalities in social mobility by neighbourhood non-White concentration and ethnic diversity, defined by transitions in social class: the likelihood of women in middle social class occupations in 1991 moving to high class occupations by 2001



	% non-white concentration	Ethnic diversity
Moderate concentration / diversity	1.057	0.942
High concentration / Low Diversity	1.123	0.891

Relative Risk Ratios and 95 % confidence intervals for tertiles 2 (moderately non-White concentrated or moderately diverse) and 3 (highly non-White concentrated or least diverse) compared to the tertile 1 (least non-White concentrated or most ethnically diverse). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Summary of Study 5

This study has explored trends in upward and downward social class mobility among women who were in middle class occupations in 1991. I found that ethnic minority women were not significantly more likely to experience downward mobility compared to White women. Indian women were significantly less likely to achieve upward mobility compared to White women. However, these particular ethnic inequalities were not statistically significant.

The likelihood of experiencing upward mobility was about the same for women in all regions of England. However, there were regional inequalities in downward mobility. Women in most regions did worse comparing to women in the South East. This was statistically significant for women that were resident in East Anglia in 1991, after controlling for individual and neighbourhood characteristics.

Inequalities in social mobility at the neighbourhood scale were also found. Women living in deprived neighbourhoods were significantly less likely to achieve upward social class mobility, but more at risk of downward mobility, compared to their peers living in affluent neighbourhoods. In terms of ethnic diversity, women in more diverse neighbourhoods were less likely to be downwardly mobile, though not significantly. In comparison, women in more ethnically diverse neighbourhoods were significantly more likely to be upwardly mobile from middle to high class occupations.

6.4.6 Study 6: High to low or middle social class occupation among women

Table 6-7 shows the percentage of social mobility among women starting off in high class occupations in 1991, and the likelihood of moving to either middle or low social class occupations by 2001. The 'Total' column indicates the total number of women in high social class occupations in the 1991 sample, with the % column identifying the percentage of those women who experienced social mobility (transition to

middle or low social classes) between 1991 and 2001. Relative Risk Ratios indicate the statistical likelihood that a woman in a high social class occupation in 1991 will move to a middle or low social class occupation by 2001, compared to likelihood of remaining in a high social class occupation. Relative Risk Ratios are derived from univariate multinomial logistic regression models, adjusting for the clustering of individuals within wards. 95% confidence intervals indicate the reliability of the Relative Risk Ratios and p-values suggest the level of significance, with $p<0.05$ considered statistically significant and highlighted in bold.

Pakistani women (BLANKED %) were over twice as likely to move from high to middle class occupations than White women (13.69%). Chinese women (BLANKED %) were less likely to move from high to middle class occupations than White women. Pakistani women were also 2.47 times more likely to move from high to low class occupations (17.95%) than White women (9.5%). Women aged 30-39 were less likely to move from high to middle or low class occupations than women aged 18-29. Women aged 40-49 were no more socially mobile than those aged 18-29. High to middle or low class mobility among women was not affected by their couple status.

However, education played an important role, with those who had qualifications, or gained them by 2001, being more likely to remain in high class occupations than those with no qualifications. Women in socially rented household tenure were 1.33 times more likely to move from high to middle class occupations and 3.03 times more likely to move from high to low class occupations than women homeowners. Women in privately rented accommodation were less likely to move from high to middle class occupations (11.83%) compared to those who owned their homes (13.66%).

Women born overseas were less likely to move from high to middle or low class occupations than those born in the UK. Moving within the UK was associated with an increased chance that a woman would move from a high to a middle class occupation (14.12%), but had no effect on high to low class mobility. Women in more deprived areas were less likely to move from high to middle class occupations (11.91%)

compared to those in more affluent areas (13.96%). However, those in more deprived neighbourhoods were at 1.24 times the risk of moving from high to low class occupations (10.52%) compared to those in more affluent areas (8.47%).

Women in more non-White concentrated neighbourhoods were less likely to move from high to low class occupations (8.72%) than those in White concentrated areas (10.11%). Similarly, women in less diverse neighbourhoods were 1.2 times more likely to move from high to low class occupations than those in more diverse areas (8.71%). Neither non-White concentration, nor ethnic diversity, was associated with high to middle class mobility among women. Compared to women in the South East (14.72%), those in the North (9.73%), Yorkshire (12.25%) and the North West (12.43%) were more likely to remain in high class occupations than moving to the middle class. For high to low class mobility, to regional variation was found.

Table 6.7: Social mobility among women between 1991 and 2001, defined by transitions in social class: the likelihood of women in high social class occupations in 1991 moving to a middle or low social class occupation by 2001

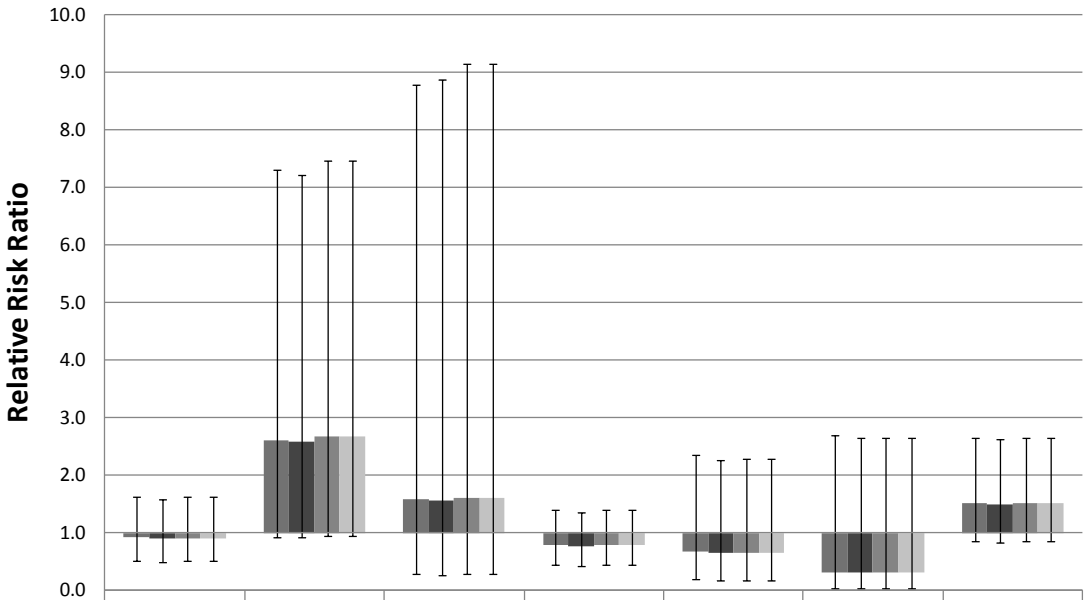
Women: High to	Total	% Middle	RRR	95% CI		p	% Low	RRR	95% CI		P
Ethnic Group											
White	13403	13.69	ref				9.50	ref			
Indian	224	14.29	1.04	0.71	1.51	0.853	7.14	0.75	0.45	1.25	0.266
Pakistani	39	BLANKED	**2.19**	**1.01**	**4.75**	**0.047**	BLANKED	**2.47**	**1.06**	**5.76**	**0.037**
Bangladeshi	11	0.00	1.60	0.33	7.73	0.558	BLANKED	2.32	0.48	11.18	0.295
Black Caribbean	170	8.82	0.59	0.35	1.01	0.054	7.65	0.74	0.42	1.31	0.303
Black African	66	BLANKED	0.81	0.39	1.71	0.589	BLANKED	0.44	0.14	1.42	0.170
Chinese	51	BLANKED	**0.23**	**0.06**	**0.96**	**0.044**	BLANKED	0.17	0.02	1.23	0.079
Other	181	9.94	0.68	0.41	1.12	0.129	9.94	1.03	0.64	1.69	0.890
Total	14145	13.57					9.42				
Age Group											
18 to 29	4852	15.05	ref				9.98	ref			
30 to 39	**4961**	**11.45**	**0.72**	**0.64**	**0.81**	**<0.001**	**8.57**	**0.81**	**0.71**	**0.93**	**0.003**
40 to 54	4332	14.38	0.95	0.84	1.07	0.380	9.79	0.98	0.86	1.13	0.822
Total	14145	13.58					9.42				
Couple Status											
Couple: 1991 & 2001	7026	13.49	ref				9.51	ref			
Single: 1991 & 2001	3483	13.12	0.96	0.85	1.08	0.503	8.87	0.92	0.80	1.06	0.251
Couple: 1991; Single: 2001	1344	13.24	0.99	0.83	1.17	0.876	9.90	1.05	0.86	1.28	0.644

Single: 1991; Couple: 2001	2292	14.75	1.11	0.97	1.27	0.141	9.73	1.04	0.88	1.23	0.631
Total	14145	13.58					9.42				
Qualifications											
None at all	745	23.36	ref				35.03	ref			
Qualifications: 1991 & 2001	**7743**	**5.89**	**0.12**	**0.09**	**0.14**	**<0.001**	**3.18**	**0.04**	**0.03**	**0.05**	**<0.001**
None: 1991; Gained: 2001	**5647**	**22.84**	**0.67**	**0.55**	**0.82**	**<0.001**	**14.57**	**0.28**	**0.24**	**0.34**	**<0.001**
Total	14145	13.57					9.42				
Household Tenure											
Owner	12478	13.66	ref				8.90	ref			
Private renter	**947**	**11.83**	**0.81**	**0.66**	**1.00**	**0.049**	7.81	0.85	0.66	1.10	0.214
Social renter	**661**	**14.98**	**1.33**	**1.05**	**1.68**	**0.020**	**21.63**	**3.03**	**2.48**	**3.71**	**<0.001**
Total	14145	13.58					9.42				
International Migration											
Born in the UK	12910	13.77	ref				9.60	ref			
Born overseas	**1235**	**11.58**	**0.80**	**0.67**	**0.95**	**0.013**	**7.61**	**0.77**	**0.62**	**0.95**	**0.016**
Total	14145	13.58					9.42				
Internal Migration											
Non-mover	5949	12.79	ref				9.43	ref			
Mover	**8187**	**14.12**	**1.12**	**1.01**	**1.24**	**0.026**	9.42	1.01	0.90	1.14	0.802
Total	14144	13.58					9.42				
Deprivation											
Low	5559	13.96	ref				8.47	ref			
Moderate	4684	14.52	1.06	0.95	1.19	0.279	**9.69**	**1.17**	**1.02**	**1.35**	**0.026**
High	**3661**	**11.91**	**0.85**	**0.75**	**0.97**	**0.016**	**10.52**	**1.24**	**1.07**	**1.44**	**0.004**
Total	14145	13.58					9.42				
% Non-White											
Low	4034	13.91	ref				10.11	ref			
Moderate	4718	14.01	1.00	0.89	1.13	0.974	9.60	0.94	0.82	1.09	0.437
High	5152	13.00	0.91	0.80	1.03	0.122	**8.72**	**0.84**	**0.72**	**0.97**	**0.016**
Total	14145	13.58					9.42				
Ethnic diversity											
High	5156	12.99	ref				8.71	ref			
Moderate	4720	14.03	1.11	0.98	1.25	0.092	9.62	1.13	0.98	1.31	0.087
Low	4028	13.90	1.10	0.97	1.25	0.121	**10.10**	**1.20**	**1.03**	**1.38**	**0.016**
Total	14145	13.58					9.42				
Standard Region											
South East	6067	14.72	ref				8.74	ref			
North	**781**	**9.73**	**0.63**	**0.48**	**0.82**	**<0.001**	9.35	1.01	0.78	1.31	0.955
Yorkshire	**1257**	**12.25**	**0.83**	**0.69**	**1.00**	**0.045**	10.74	1.23	1.00	1.52	0.055
East Midlands	1096	15.05	1.05	0.87	1.27	0.604	10.13	1.19	0.93	1.52	0.156
East Anglia	538	13.57	0.93	0.71	1.22	0.599	9.67	1.12	0.83	1.52	0.459
South West	1182	12.77	0.86	0.71	1.04	0.120	10.32	1.18	0.95	1.46	0.130
West Midlands	1358	13.03	0.86	0.72	1.02	0.090	9.72	1.10	0.89	1.35	0.384
North West	**1866**	**12.43**	**0.83**	**0.71**	**0.97**	**0.023**	9.54	1.06	0.87	1.28	0.573
Total	14145	13.58					9.42				

Source: ONS LS, created by the Author

Figure 6-41 shows the ethnic inequalities in social mobility defined as transitions between high and low class occupations. Pakistani and Bangladeshi women were more likely to move from high to low class occupations than White women. Indian, Black Caribbean, Black African and Chinese women were less likely in comparison. However, none of these ethnic inequalities were statistically significant. Figure 6-42 shows the ethnic inequalities in high to middle class social mobility among women between 1991 and 2001. Indian, Pakistani, Bangladeshi and Black African women were more likely to be socially mobile compared to White women. Black Caribbean and Chinese women were more likely to remain in high class occupations compared to White women. However, these inequalities were not statistically significant.

Figure 6-41: Ethnic inequalities in social mobility, defined by transitions in social class: the likelihood of women in high social class occupations in 1991 moving to low class occupations by 2001 (Created by the author using the ONS LS)



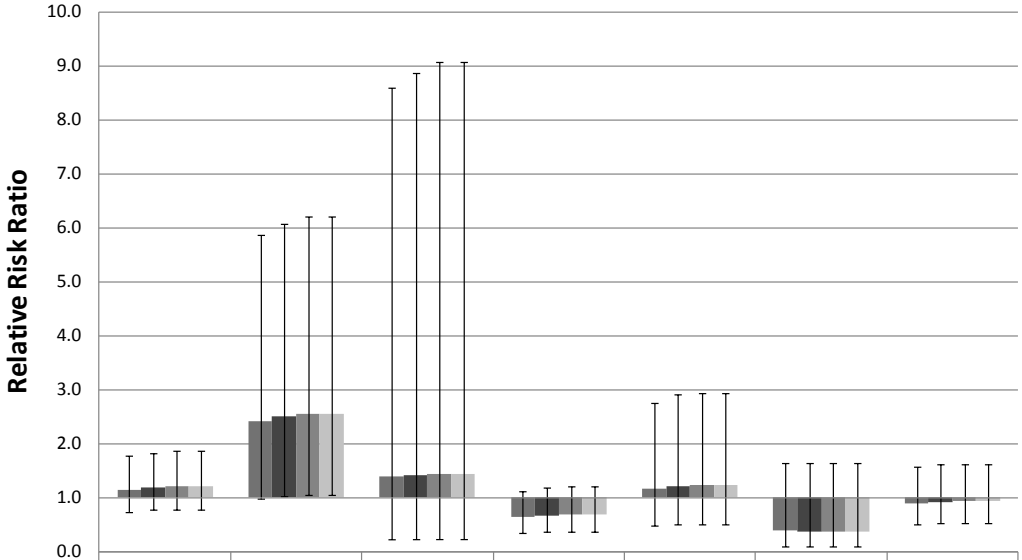
	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Chinese	Other
Model 1	0.923	2.616	1.600	0.796	0.676	0.316	1.514
Model 2	0.898	2.583	1.574	0.775	0.654	0.309	1.490
Model 3	0.918	2.670	1.611	0.790	0.660	0.308	1.510
Model 4	0.918	2.670	1.612	0.791	0.660	0.308	1.510

Relative Risk Ratios and 95 % confidence intervals for each ethnic group compared to the White group. 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Models were adjusted as follows:

Model 1: all individual characteristics, plus region of residence
Model 2: as Model 1, plus the Townsend deprivation index for CAS wards
Model 3: as Model 2, plus the percentage of non-White concentration for CAS wards
Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 6-42: Ethnic inequalities in social mobility, defined by transitions in social class: the likelihood of women in high social class occupations in 1991 moving to middle class occupations by 2001 (Created by the author using the ONS LS)



	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Chinese	Other
Model 1	1.154	2.418	1.399	0.637	1.158	0.386	0.904
Model 2	1.192	2.505	1.428	0.673	1.224	0.381	0.928
Model 3	1.208	2.551	1.446	0.679	1.226	0.381	0.934
Model 4	1.208	2.551	1.447	0.679	1.227	0.381	0.934

Relative Risk Ratios and 95 % confidence intervals for each ethnic group compared to the White group. 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Models were adjusted as follows:

Model 1: all individual characteristics, plus region of residence
Model 2: as Model 1, plus the Townsend deprivation index for CAS wards
Model 3: as Model 2, plus the percentage of non-White concentration for CAS wards
Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 6-43 illustrates regional inequalities in the likelihood of high to middle class social mobility among women. Regions with thick boundaries indicate a percentage that is significantly different to the South East ($p<0.05$). Significance levels are calculated from multinomial logit regression, adjusting for

individual factors, deprivation and non-White concentration. Except for those in the East Midlands, women in every other region outside the South East were less likely to be downwardly mobile. This trend was significant for women resident in the North, North West, and the West Midlands. However, although not significant, Figure 6-44 shows that women in every region outside the South East were more likely to move from high to low class occupations instead.

Figure 6-45 shows the effect of deprivation on moves from high to low class occupations among women between 1991 and 2001. Women in more deprived neighbourhoods were more likely to be socially mobile, though none of these effects were statistically significant. Figure 6-46 shows the effect of deprivation on the likelihood of women moving from high to middle class occupations. Women in moderately deprived neighbourhoods were slightly more likely to move to middle class occupations compared to those in affluent neighbourhoods. Women in more deprived neighbourhoods were, on the other hand, less likely to move from high to middle class occupations. None of these deprivation effects were statistically significant.

Figure 6-47 shows the effect of neighbourhood ethnic diversity on the likelihood of women in high class occupations moving to the low class, controlling for individual, region and deprivation factors. Women in more non-White concentrated neighbourhoods were less likely to be downwardly socially mobile. Women in less diverse neighbourhoods were more likely to be downwardly socially mobile. However, neither of these effects of ethnic diversity was significant for this particular definition of social mobility among women. Figure 6-48 shows the effect of neighbourhood ethnic diversity on the likelihood of women in high class occupations moving to the middle class, controlling for individual, region and deprivation factors. Women in more non-White concentrated neighbourhoods were less likely to be downwardly mobile. Women in less diverse neighbourhoods were more likely to be downwardly mobile. However, neither of these effects of ethnic diversity were significant for this particular definition of social mobility among women.

Figure 6-43: The likelihood of women in high class occupations in 1991 moving to middle class occupations by 2001, by 1991 Standard Regions (Created by the author using the ONS LS)

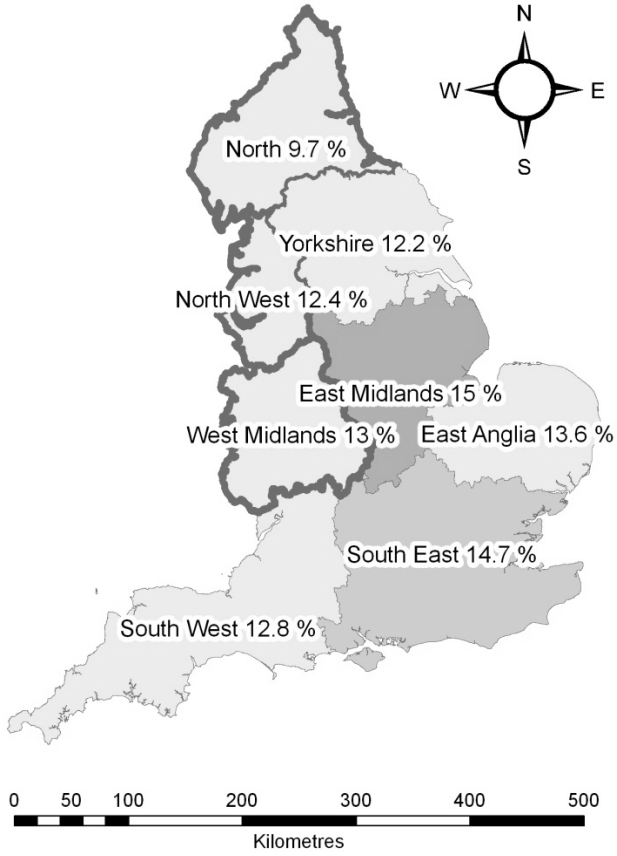
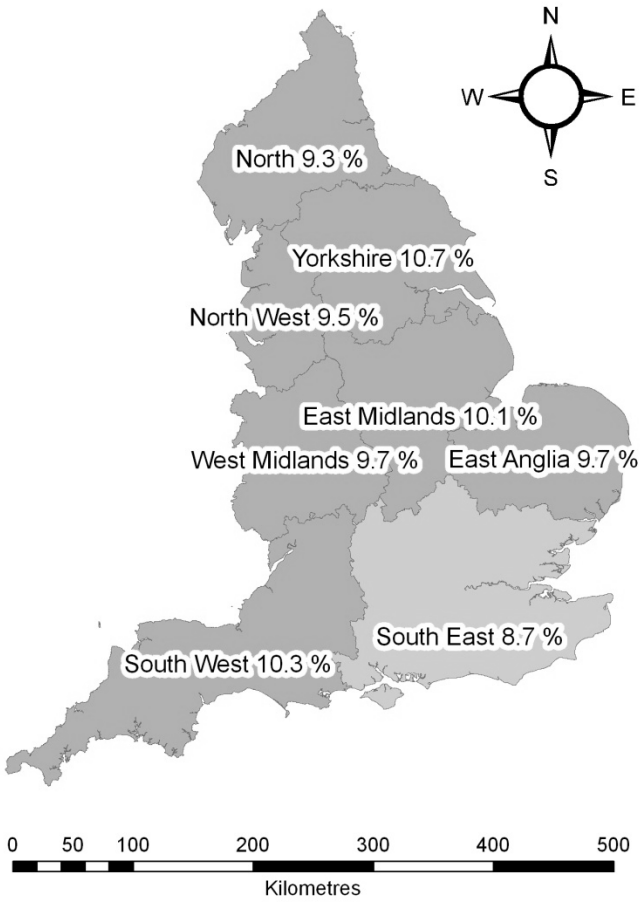
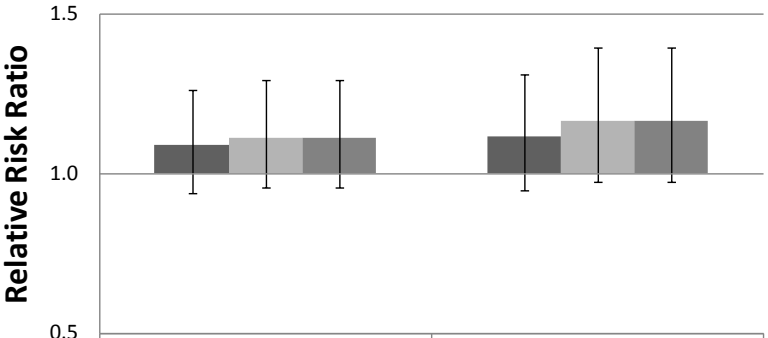


Figure 6-44: The likelihood of women in high class occupations in 1991 moving to low class occupations by 2001, by 1991 Standard Regions (Created by the author using the ONS LS)



Reference | Higher than reference | Lower than reference | Bold outline = significantly different from reference (P<0.05)

Figure 6-45: Deprivation inequalities in social mobility, defined by transitions in social class: the likelihood of women in high social class occupations in 1991 moving to low class occupations by 2001 (Created by the author using the ONS LS)



	Moderate	High
Model 2	1.090	1.116
Model 3	1.114	1.166
Model 4	1.114	1.167

Relative Risk Ratios and 95 % confidence intervals for tertiles 2 (moderately deprived) and 3 (highly deprived) compared to the tertile 1 (affluent). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

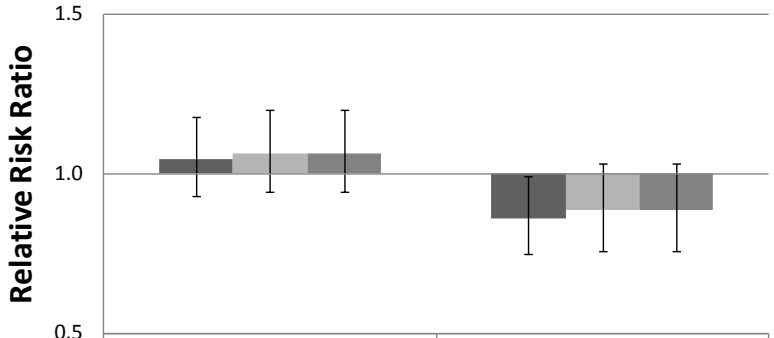
Models were adjusted as follows:

Model 2: all individual characteristics, region of residence, plus the Townsend deprivation index for CAS wards

Model 3: as Model 2, plus the percentage of non-White concentration for CAS wards

Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

Figure 6-46: Deprivation inequalities in social mobility, defined by transitions in social class: the likelihood of women in high social class occupations in 1991 moving to middle class occupations by 2001 (Created by the author using the ONS LS)



	Moderate	High
Model 2	1.047	0.861
Model 3	1.064	0.886
Model 4	1.064	0.886

Relative Risk Ratios and 95 % confidence intervals for tertiles 2 (moderately deprived) and 3 (highly deprived) compared to the tertile 1 (affluent). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

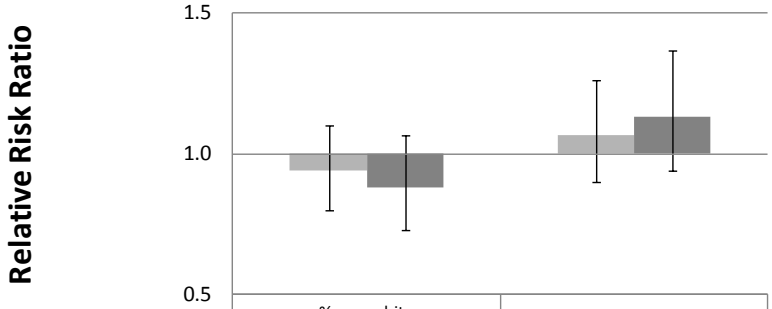
Models were adjusted as follows:

Model 2: all individual characteristics, region of residence, plus the Townsend deprivation index for CAS wards

Model 3: as Model 2, plus the percentage of non-White concentration for CAS wards

Model 4: as Model 2, plus the Herfindahl index of ethnic diversity for CAS wards

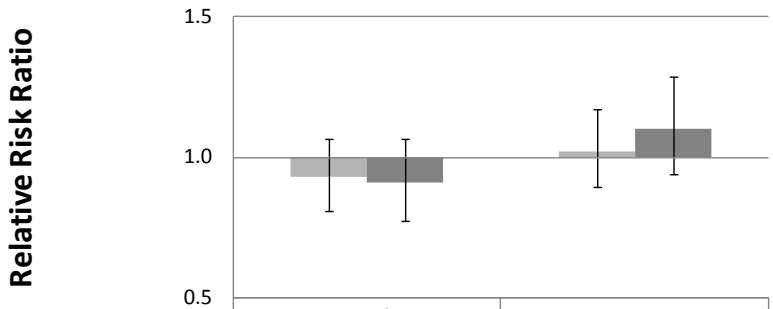
Figure 6-47: Inequalities in social mobility by neighbourhood non-White concentration and ethnic diversity, defined by transitions in social class: the likelihood of women in high social class occupations in 1991 moving to low class occupations by 2001 (Created by the author using the ONS LS)



	% non-white concentration	Ethnic diversity
Moderate concentration / diversity	0.939	1.066
High concentration / Low Diversity	0.882	1.133

Relative Risk Ratios and 95 % confidence intervals for tertiles 2 (moderately non-White concentrated or moderately diverse) and 3 (highly non-White concentrated or least diverse) compared to tertile 1 (least non-White concentrated or most ethnically diverse). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Figure 6-48: Inequalities in social mobility by neighbourhood non-White concentration and ethnic diversity, defined by transitions in social class: the likelihood of women in high social class occupations in 1991 moving to middle class occupations by 2001 (Created by the author using the ONS LS)



	% non-white concentration	Ethnic diversity
Moderate concentration / diversity	0.929	1.023
High concentration / Low Diversity	0.910	1.099

Relative Risk Ratios and 95 % confidence intervals for tertiles 2 (moderately non-White concentrated or moderately diverse) and 3 (highly non-White concentrated or least diverse) compared to tertile 1 (least non-White concentrated or most ethnically diverse). 95% confidence intervals that do not overlap 1 indicate statistical significance ($p<0.05$).

Summary of Study 6

The purpose of this study was to investigate trends in downward social mobility among women who had high social class occupations in 1991, and the likelihood of moving to middle or low class occupations by 2001. I found no significant ethnic inequalities at all, which suggests that ethnic minority women were no more likely to be downwardly mobile than their White peers. However, this could be a small numbers issue. If I had access to larger sample sizes for every ethnic group, some of the trends that suggest ethnic inequalities could have become statistically significant. Notably, for example, Pakistani and Bangladeshi women appeared more likely to be downwardly mobile compared to White women.

Only a small amount of significant regional variation in downward mobility was observed. High to middle class transitions were more likely for women in the North, North West and the West Midlands, compared to their peers in the South East. No significant inequalities were found for high to low class transitions, though it appeared that women in each region of England were more likely to be downwardly mobile compared to women in the South East.

Some small inequalities in social mobility at the neighbourhood scale were also found. Women in more deprived neighbourhoods were more likely to be downwardly mobile, though this effect was not statistically significant. Women in less ethnically diverse neighbourhoods were more socially mobile, though not significantly. In other words, individual factors and the region were more important than ethnicity and neighbourhood characteristics for explaining downward social mobility among women in high class occupations.

6.5 Sensitivity Analyses

6.5.1 An alternative to multinomial logit models?

The analyses in this chapter have used multinomial logit regression models. The aim of using these models was to fit the likelihood, for example, of moving from low to middle class occupations compared to staying in low class occupations, controlling for moves from low to high class occupations. In other words, the likelihood of one trajectory of social mobility, conditioning on all other possibilities including persistence within the same social class as occupied in 1991. This approach has revealed some important heterogeneity of ethnic inequalities in social mobility. For example, Pakistani, Bangladeshi, and Chinese men in low class occupations were significantly more likely than their White peers to move to middle class occupations. In comparison, no significant ethnic inequalities were uncovered among men moving from low to high class occupations.

However, the multinomial logit regression model is not the only possible approach that could be used in this analysis. As routine and manual occupations in the NS-SEC are equated to 'low class', intermediary occupations as 'middle class', and professional and managerial occupations as 'high class', it can be demonstrated that these occupational classes follow an order (Office for National Statistics, 2012). Therefore, the 3-category version of the NS-SEC can be described as an 'ordinal' variable. Multinomial logit regression models do not acknowledge this ordering, which results in potentially important information concerning that order being lost.

I explored the sensitivity of my analyses in this chapter when using a different type of regression model which can take into account the ordinal dependent variable. This is called 'ordered logit regression' (Brant, 1990). The ordered logit regression model is another extension of the binary

logit model. It is similar to a multinomial logit model in that the number of categories in the dependent variable can be three or more. However, it is assumed that each category is ordered and therefore all transitions from the reference category are in a specific order.

For example, people in low social class occupations in 1991 who remain in a low class occupation by 2001 are the reference category (1). Those who moved to middle class (2), or high class occupations (3) by 2001, are ordered consecutively. "It is assumed that the determinants of moves from any class origin to any class destination are the same, which means that a single set of parameters can be estimated for all trajectories in social mobility simultaneously within an ordered logit model. This is different to the multinomial logit, which assumes no ordering of the dependant variable and therefore will produce separate parameter estimates for every possible trajectory between social class origin and destinations. As multinomial logit regression estimates those additional parameters, this uses up more statistical power than an ordered logit model of the same data. Smaller sample sizes and more parameters can widen 95% confidence intervals in multinomial logit regression and make it more difficult to detect statistically significant associations. This is a disadvantage of the multinomial logit regression in comparison to the ordered logit regression, which when modelling the same data, has more statistical power to observe significant associations because only one set of parameters are estimated (Brant, 1990)."

In the next section, I explain how the ordered logit regression models were fitted, present the results, and then explain the model assumptions at the same time as I evaluate the results.

6.5.2 Results using ordered logit regression

I re-fitted all of the models within chapter 6 using ordered logit models, but only for people in low or high class occupations in 1991. This is because social mobility among people in low class occupations in 1991 (i.e. to low, middle or high class occupations by 2001), and people in high class occupations in 1991 (i.e. to high, middle or low class occupations by 2001) was ordered.

The results are given as proportional odds ratios, which can be interpreted in a similar way to odds ratios. The calculation of proportional odds ratios and their interpretation was explained in Chapter 3 (p.133). With reference to Table 6.8, proportional odds ratios above 1, such as for Pakistani men in low class occupations in 1991, indicate a greater likelihood of upward social class mobility compared to White men. Proportional odds ratios below 1, such as for Indian men in low class occupations, indicate a greater likelihood of remaining in low social class occupations compared to White men. As with all of the ONS LS analyses, I took a step by step approach to building the models. The results at each stage of adjustment are presented in Table 6-8. First, I assessed the univariate associations (Model 1 - univariate), followed by adjusting the ethnic inequalities in social mobility by conventional variables (Model 2), and then by neighbourhood deprivation (Model 3) and ethnic diversity (Models 4 and 5).

In general, many of the ethnic minority – White group differences in social mobility reported earlier in this chapter were no longer statistically significant in the univariate ordered logit models. Further adjustment for conventional and neighbourhood characteristics had little significant effect on the ethnic inequalities, with Pakistani men in low class occupations remained more likely to be upwardly mobile compared to their White peers. Indian women in low class occupations were significantly less likely to be upwardly mobile compared to White women. Compared to their White peers, downward social class mobility was more likely among Black African, and

especially Bangladeshi men in high class occupations. Pakistani women were significantly more likely to be downwardly mobile from high class occupations compared to White women.

Table 6.8: Ethnic inequalities in social class mobility: using Ordered Logit regression, adjusted for clustering within wards using Huber White robust standard errors (Created by the author using the ONS LS)

Low social class in 1991: Likelihood of upward social class mobility to middle or high class occupations

	Proportional Odds Ratio in comparison to the White group (95% Confidence Interval)						
Men	**Indian**	**Pakistani**	**Bangladeshi**	**Black Caribbean**	**Black African**	**Chinese**	**Other**
Model 1	0.81 (0.68, 0.96)*	1.30 (1.05, 1.62)*	1.21 (0.84, 1.75)	0.93 (0.72, 1.21)	1.38 (0.74, 2.55)	1.10 (0.72, 1.70)	1.18 (0.88, 1.57)
Model 2	0.92 (0.74, 1.14)	1.82 (1.40, 2.38)***	1.47 (0.96, 2.26)	0.91 (0.69, 1.19)	1.13 (0.58, 2.19)	1.39 (0.86, 2.23)	1.03 (0.75, 1.42)
Model 3	0.96 (0.78, 1.19)	1.91 (1.46, 2.50)***	1.52 (0.99, 2.33)	0.95 (0.72, 1.25)	1.19 (0.61, 2.29)	1.35 (0.84, 2.16)	1.07 (0.78, 1.48)
Model 4	0.94 (0.76, 1.17)	1.86 (1.42, 2.43)***	1.50 (0.98, 2.30)	0.93 (0.71, 1.23)	1.17 (0.60, 2.26)	1.33 (0.83, 2.15)	1.06 (0.77, 1.46)
Model 5	0.94 (0.76, 1.16)	1.86 (1.42, 2.43)***	1.50 (0.98, 2.30)	0.93 (0.71, 1.23)	1.17 (0.60, 2.26)	1.33 (0.83, 2.15)	1.06 (0.77, 1.46)
Women							
Model 1	0.64 (0.52, 0.79)***	1.04 (0.53, 2.06)	0.54 (0.16, 1.84)	1.50 (1.08, 2.08)*	1.10 (0.64, 1.91)	1.58 (0.87, 2.87)	1.11 (0.82, 1.51)
Model 2	0.71 (0.54, 0.92)**	0.89 (0.44, 1.83)	0.57 (0.17, 1.91)	1.31 (0.93, 1.85)	0.82 (0.47, 1.44)	1.54 (0.81, 2.93)	0.80 (0.57, 1.13)
Model 3	0.73 (0.56, 0.95)*	0.92 (0.45, 1.89)	0.58 (0.18, 1.95)	1.34 (0.95, 1.90)	0.83 (0.48, 1.46)	1.53 (0.80, 2.92)	0.81 (0.58, 1.14)
Model 4	0.68 (0.52, 0.89)**	0.86 (0.42, 1.76)	0.56 (0.17, 1.83)	1.26 (0.89, 1.78)	0.79 (0.45, 1.38)	1.50 (0.79, 2.84)	0.78 (0.55, 1.10)
Model 5	0.68 (0.52, 0.89)**	0.86 (0.42, 1.76)	0.56 (0.17, 1.83)	1.26 (0.89, 1.78)	0.79 (0.45, 1.39)	1.50 (0.79, 2.84)	0.78 (0.55, 1.10)

High social class in 1991: Likelihood of downward social class mobility to middle or low class occupations

	Proportional Odds Ratio in comparison to the White group (95% Confidence Interval)						
Men	**Indian**	**Pakistani**	**Bangladeshi**	**Black Caribbean**	**Black African**	**Chinese**	**Other**
Model 1	0.96 (0.77, 1.18)	1.24 (0.83, 1.84)	2.87 (1.33, 6.18)**	1.06 (0.66, 1.70)	1.50 (0.85, 2.62)	0.91 (0.50, 1.65)	0.86 (0.65, 1.15)
Model 2	1.17 (0.91, 1.50)	1.24 (0.83, 1.85)	3.12 (1.30, 7.51)**	0.91 (0.55, 1.50)	1.84 (1.05, 3.21)*	1.51 (0.77, 2.96)	1.10 (0.81, 1.48)
Model 3	1.12 (0.88, 1.44)	1.16 (0.78, 1.73)	2.96 (1.26, 6.99)**	0.85 (0.52, 1.40)	1.75 (1.00, 3.04)*	1.47 (0.75, 2.87)	1.06 (0.78, 1.43)
Model 4	1.15 (0.89, 1.47)	1.19 (0.79, 1.77)	3.02 (1.28, 7.13)**	0.87 (0.52, 1.43)	1.76 (1.01, 3.06)*	1.48 (0.76, 2.90)	1.07 (0.80, 1.45)
Model 5	1.15 (0.90, 1.47)	1.19 (0.79, 1.77)	3.02 (1.28, 7.13)**	0.87 (0.53, 1.43)	1.76 (1.01, 3.07)*	1.48 (0.76, 2.90)	1.07 (0.80, 1.45)
Women							
Model 1	0.90 (0.66, 1.23)	2.25 (1.21, 4.21)**	1.94 (0.57, 6.62)	0.66 (0.44, 1.00)*	0.65 (0.34, 1.22)	0.21 (0.06, 0.66)**	0.85 (0.58, 1.23)
Model 2	1.05 (0.74, 1.50)	2.27 (1.09, 4.75)*	1.53 (0.41, 5.79)	0.73 (0.47, 1.12)	0.94 (0.43, 2.05)	0.35 (0.11, 1.14)	1.20 (0.78, 1.85)
Model 3	1.05 (0.74, 1.50)	2.29 (1.10, 4.79)*	1.55 (0.41, 5.88)	0.74 (0.48, 1.13)	0.94 (0.43, 2.06)	0.34 (0.10, 1.12)	1.20 (0.78, 1.86)
Model 4	1.07 (0.75, 1.53)	2.37 (1.13, 4.97)*	1.58 (0.41, 6.05)	0.75 (0.48, 1.15)	0.95 (0.43, 2.07)	0.34 (0.10, 1.12)	1.21 (0.79, 1.88)
Model 5	1.07 (0.75, 1.53)	2.37 (1.13, 4.96)*	1.58 (0.41, 6.05)	0.75 (0.48, 1.15)	0.95 (0.43, 2.07)	0.34 (0.10, 1.12)	1.21 (0.79, 1.88)

*** P<0.001; **P<0.01; *P<0.05

Model 1: Univariate

Model 2: Univariate + Conventional variables

Model 3: Model 2 + Deprivation

Model 4: Model 3 + Non-White concentration

Model 5: Model 3 + Ethnic diversity

Created by the Author using the ONS LS

6.5.3 Evaluation of sensitivity analyses

In this chapter, I have shown that social class mobility can be analysed using multinomial logit and ordered logit models. Due to the ordinal nature of the NS-SEC 3-category dependent variable, the ordered logit regression model would seem to be the more appropriate approach because it is designed to handle ordinal dependent variables. However, despite the ordinal dependent variable, multinomial logit regression is actually better suited for modelling this data. This is because it provides multiple sets of parameters and examines every measurable trajectory in social class mobility. In this section, I explain how I have arrived at this conclusion.

The first issue is another assumption which must not be violated in order for an ordered logit regression model to estimate reliable associations. Importantly, the ordered logit regression assumes that the determinants of moves between every category of the dependent variable are the same. For example, the determinants of low to middle class occupational moves are the same as low to high class occupational moves. This is called the 'proportional odds assumption' (Brant, 1990), and is the reason why the ordered logit regression only provides a single set of parameter estimates.

To further investigate the appropriateness of the ordered logit regression, I used the 'omodel' command in Stata to formally test the proportional odds assumption in univariate models for each independent variable. Table 6-9 illustrates the results, with most associations shown to have a large and statistically significant ($p<0.05$) 'chi' score, which suggests that the proportional odds assumption is violated. The rejection of the proportional odds assumption means the single set of parameters that an ordered logit regression estimates are not appropriate (and one reason why a multinomial logit regression model is more suitable).

Table 6.9: Testing the proportional odds assumption using the 'omodel' command in Stata (Created by the author using the ONS LS)

Dependent Variable	Independent Variable	chi *	p-value	Dependent Variable	Independent Variable	chi *	p-value
Men				Women			
Low to middle/high	**Ethnicity**	**89.79**	**<0.001**	Low to middle/high	Ethnicity	8.66	0.278
	Couple status	5.57	0.134		Couple status	6.98	0.073
	Qualifications	**104.49**	**<0.001**		**Qualifications**	**9.17**	**0.010**
	Household tenure	4.23	0.237		**Household tenure**	**15.27**	**0.002**
	Migrant generation	**64.11**	**<0.001**		Migrant generation	2.99	0.084
	Spatial mobility	2.74	0.255		**Spatial mobility**	**9.01**	**0.011**
	Deprivation	**8.87**	**0.031**		**Deprivation**	**20.40**	**<0.001**
	Non-White %	**9.34**	**0.025**		Non-White %	1.80	0.615
	Herfindahl index	**9.18**	**0.027**		Herfindahl index	2.00	0.573
	Region	**26.05**	**<0.001**		Region	7.84	0.347
High to middle/low	Ethnicity	11.60	0.115	High to middle/low	Ethnicity	4.19	0.758
	Couple status	4.56	0.207		Couple status	1.23	0.746
	Qualifications	**32.99**	**<0.001**		**Qualifications**	**19.14**	**<0.001**
	Household tenure	**39.21**	**<0.001**		**Household tenure**	**19.62**	**<0.001**
	Migrant generation	**16.17**	**<0.001**		Migrant generation	0.00	0.969
	Spatial mobility	**12.11**	**0.002**		Spatial mobility	4.99	0.083
	Deprivation	**26.89**	**<0.001**		**Deprivation**	**19.25**	**<0.001**
	Non-White %	**7.95**	**0.047**		Non-White %	0.80	0.850
	Herfindahl index	7.67	0.053		Herfindahl index	0.79	0.853
	Region	**39.39**	**<0.001**		**Region**	**22.54**	**0.002**

* Approximate likelihood-ratio test of proportionality of odds across response categories
Statistically significant violations of the proportional odds assumption are highlighted in bold (P<0.05)

What the rejection of the proportional odds assumption substantively means is that the determinants of social class mobility vary according to occupational class origins and destinations. As was discussed in the introduction, fewer vacancies and more competition for jobs in higher class occupations mean that upward social mobility becomes increasingly less likely among people already in relatively higher socioeconomic positions. There is no reason why we would expect the determinants of moves from low to middle class, for example, to be the same as low to high class occupations (or for any other combination). This has been demonstrated in Study 1 of this chapter, where Pakistani, Bangladeshi and Chinese men were all significantly more likely to

move from low to middle class occupations compared to White men, but these ethnic differences were not observed among men moving from low to high class occupations.

It therefore seems most relevant to embrace this heterogeneity and use methods which allow us to investigate to what extent ethnic inequalities in social mobility vary between occupational class origins and destinations. Although variants of the ordered logit regression (e.g. stereotyped ordered models, or effect proportional scaling) seek to reduce violations of the proportional odds assumption, only multinomial logit regression allows an investigation of the determinants of all measurable trajectories in social mobility separately, which is its advantage rather than limitation in this research.

In conclusion, although the NS-SEC 3-category variable can be described as ordinal, applying the ordered logit regression on this basis is not the most appropriate model to describe the data, because of the rejection of proportional odds assumption. Heterogeneity in determinants of social mobility between different occupational class origins and destinations needs to be investigated, and multinomial logit regression is better suited for these purposes.

This does not mean that the multinomial logit regression is the perfect option and there is no merit in using ordered logit regression – each method has merits and drawbacks. However, for my thesis, multinomial logit regression is necessarily the primary method to ensure that the significant complexity of ethnic inequalities in social class mobility is acknowledged as fully as possible. This is in line with previous studies of ethnic inequalities in intergenerational social mobility by Platt (2006), which came to the same conclusion.

6.6 Discussion

6.6.1 Main findings

This chapter investigated ethnic inequalities, regional inequalities in social mobility and neighbourhood effects on social mobility between 1991 and 2001, as defined by transitions in occupations between social classes. Social class was defined using the three-level NS-SEC classification. I posed seven questions at the beginning of the chapter. In this section, I outline answers to each of these questions using the results of the six studies presented.

1) *Are ethnic minorities more likely to be downwardly mobile than White individuals?*

I found mostly no statistically significant evidence that ethnic minority men in middle or high class occupations were more likely to move to low class occupations compared to White men. For men in high class occupations, only Bangladeshi men were significantly more likely to be downwardly mobile (high to middle class) compared to White men. Among women in middle or high class occupations, ethnic minority women were not significantly more likely to experience downward mobility compared to White women. Therefore, the clear answer is that I found little statistically significant evidence to suggest that ethnic minorities were more likely to be downwardly mobile compared to White individuals.

2) *Are ethnic minorities less likely to be upwardly mobile than White individuals?*

The results I have reported in this chapter demonstrate a mixed and slightly different picture to previously published evidence, which has tended to show reduced changes of social mobility among ethnic minorities compared to their White peers (e.g. (Heath et al., 2000b, Heath and Smith, 2003)). Among men in low class occupations, Pakistani, Bangladeshi and Chinese men were all significantly more likely to be upwardly mobile to middle class occupations than White men. For low to high class mobility, only Indian men were significantly less likely to achieve this transition compared to White men. For middle to high class mobility, Bangladeshi men were significantly less likely to achieve this transition compared to White men.

On the other hand, Black Caribbean men were more likely to do so than White men. Among women in low class occupations, Indians were significantly less likely to move from low to middle class occupations than White women. Chinese women were significantly more likely. Indian women were also significantly less likely to move from low to high class occupations than White women. For middle to high class mobility, again I found Indian women were significantly less likely to achieve this form of upward transition compared to White women. Therefore, in answer to question two, there are some cases where ethnic minorities are less likely to be upwardly mobile compare to White persons. However, this is not always the case, as there is evidence that some ethnic minorities do better than White persons.

3) *Is neighbourhood deprivation positively associated with the likelihood of downward social mobility?*

This chapter found men and women in middle class occupations living in deprived neighbourhoods were more likely to move to low class occupations than their peers in more affluent areas. For men in high class occupations, those living in deprived neighbourhoods were

significantly more likely to move to low class occupations compared to those in affluent neighbourhoods. Similar results were found for women starting off in high class occupations, though the effect of deprivation was not statistically significant. Therefore, in answer to question three, I find supportive evidence for an independent effect of neighbourhood deprivation on increasing the likelihood of downward social mobility.

4) *Is neighbourhood deprivation negatively associated with the likelihood of upward social mobility?*

In this chapter I found both men and women in more deprived neighbourhoods were less likely to move from low to middle class occupations. The chances of moving from low to high class occupations were especially affected by living in a deprived neighbourhood, with a clear negative trend. Similarly, both men and women in more deprived neighbourhoods were less likely to move from middle to high class occupations. Therefore, the evidence presented in this chapter supports the possibility that people living in deprived neighbourhoods were less likely to achieve upward social mobility, after controlling for individual characteristics and the region of England they lived in.

5) *What is the nature of the relationship between transitions in social class and neighbourhood ethnic diversity?*

The evidence presented in this chapter was not straightforward. Men in low class positions were slightly more likely to be upwardly mobile if they lived in a moderately diverse neighbourhood, compared to those with high or low levels of ethnic diversity. However, for women in low class

occupations, the ethnic diversity of the neighbourhood played little role in their chances for upward social mobility.

For men and women in middle class occupations, those living in the most diverse neighbourhoods were significantly more likely to be upwardly mobile. Men in the least diverse neighbourhoods were significantly more likely to be downwardly mobile. A similar trend was found for women, but it was not statistically significant. Among men in high class occupations, moves to low class occupations were significantly more likely among men in less diverse and less non-White concentrated neighbourhoods.

These results were slightly different to what was found in my univariate analyses (where higher downward mobility was more likely to be found in more diverse and more non-White concentrated neighbourhoods). It could be that the correlation between each of the measures of ethnic diversity and deprivation was producing biased results within the regression model. For women, there was no significant association between diversity and downward mobility from high class occupations. Therefore, in answer to the fifth question of this chapter, it seems that there are associations between neighbourhood ethnic diversity and social mobility after controlling for important factors like couple status, qualifications, age, etc.

6) *To what extent are any of the ethnic inequalities in social mobility explained by effects of neighbourhood deprivation and ethnic diversity?*

This chapter has demonstrated that ethnic inequalities in social mobility, after controlling for other individual characteristics and regardless of the definition of social mobility, remained consistent after controlling for all neighbourhood measures. This suggests that although some

neighbourhood characteristics, particularly deprivation, may be important for shaping life chances in some respects, they do not fully explain the ethnic inequalities in social mobility in England.

7) *Are there regional inequalities in social mobility, after controlling for any individual and neighbourhood effects?*

This chapter has demonstrated that on top of individual characteristics and the types of neighbourhood in which people live, the region of England where they were located in 1991 also had a significant influence on the likelihood of being socially mobile. A clear north-south gradient was observed for men and women in low class occupations – those in the South East were significantly more likely to be upwardly mobile compared to peers in other regions, especially the north. Among men in middle class occupations, those in the South East were again more likely to be upwardly mobile.

For women in middle class occupations, the chances of upward mobility were similar in all regions of England. However, both men and women in the South East were less likely to experience downward mobility than those in most other regions of England. Similarly, for men and women in high class occupations, the likelihood of experiencing downward mobility was least among those in the South East compared to other regions of England. Therefore, in answer to the final question of this chapter, significant regional inequalities in social class mobility were found, with the dominant pattern being more upward mobility in the South East and more downward mobility in other regions, especially in the north.

6.6.2 Interpretation

This chapter has enhanced our understanding of ethnic inequalities in social mobility and effects of neighbourhood characteristics in various ways. In deprived, urban neighbourhoods of England in 1991, people were often less likely to achieve upward social mobility 10 years later compared to their peers in more affluent areas. Although comparative studies of social class mobility and neighbourhood effects are fairly rare, this finding is broadly accordant with longitudinal studies that explore effects of deprivation on income mobility (Galster et al., 2008, 2010 , Musterd et al., 2008, Clampet-Lundquist and Massey, 2008, Buck, 2001).

Although many studies have demonstrated a relationship between income mobility and neighbourhood deprivation in the UK (Bolster et al., 2007), Canada (Oreopoulos, 2003), and the USA (Kling et al., 2007, 2008), a person may be socially mobile in terms of their occupational class, but relatively immobile in terms of income. Therefore, any comparisons between my study of social class mobility and others of income mobility must be careful.

If neighbourhood deprivation does reduce life chances of upward mobility, one test of this relationship is to investigate whether persons already in the higher class are likely to become downwardly mobile if they live in more deprived neighbourhoods (Galster, 2007b). My research finds supportive results for this test. This makes the association between deprivation and social class mobility more convincing.

Despite neighbourhood deprivation having significant effects, ethnic inequalities in social class mobility persisted after controlling for neighbourhood deprivation. This is a second major contribution to the literature, as many studies have explored ethnic inequalities in social class mobility (Platt, 2005a, 2007, Heath et al., 2008a, Heath and Smith, 2003), the focus has been almost entirely upon individual-level explanations and less concerned with addressing

neighbourhood effects. My study has showed that although ethnic minorities are over-represented in some of the most deprived neighbourhoods in England (Peach, 1996b, 2006b, Phillips, 1998), this does not fully explain why ethnic minorities are often reportedly less likely to be upwardly socially mobile compared to the White group.

In extension of this point, a third major contribution from this chapter has been to show that ethnic minorities are not always disadvantaged compared to their White peers. For example, Pakistani, Bangladeshi and Chinese men were all significantly more likely to move up from low to middle class occupations than White men. Black Caribbean and Black African men were significantly more likely than White men to move up from middle to high class occupations. Meanwhile, Chinese women were more likely than White women to move from low to middle class occupations. Fewer ethnic differences were found for middle to high class mobility, Indian persons were less likely to achieve this transition compared to White persons. All of these ethnic differences were statistically significant after controlling for individual factors, neighbourhood characteristics and region of residence. The conclusion as far as ethnic inequalities in social mobility are concerned is fairly clear:

- ethnic inequalities in intragenerational social class mobility are not fully explained by other factors;
- the nature of the inequality is not always negative for all ethnic minority groups;
- whether neighbourhood characteristics are important for ethnic inequalities in social class mobility or not, depends upon the type of transition (whether up or down, and the class which a person occupies at the beginning of the study).

Unlike the effects of neighbourhood deprivation, associations between ethnic diversity and social mobility found in this chapter were not as straightforward. Despite a long history of theoretical development throughout the 1900s (Allport, 1954, Pettigrew, 1998, Bobo and Hutchings, 1996,

Blumer, 1958, Putnam, 2007), there has been no consideration of ethnic diversity as a determinant of social class mobility in the UK until now.

Univariate analyses were reasonably consistent as they tended to show more upward mobility and less downward mobility among persons living in more ethnically diverse neighbourhoods, according to each measure used. It would seem that ethnic diversity in urban neighbourhoods promoted upward social class mobility. This might be considered supportive of Allport's contact hypothesis, with less discrimination in the local labour market. It could also reflect Aldrich's protected market hypothesis and Portes' ethnic enclave hypothesis, with greater demand for niche enterprise and more job opportunities for people with lower educational qualifications and language fluency, making upward social mobility more common in ethnically diverse neighbourhoods (Aldrich et al., 1985b, Aldrich and Waldinger, 1990, Wilson and Portes, 1980, Portes and Manning, 2005).

However, after controlling for other variables, sometimes the effect of diversity disappeared or reversed. This suggests that individual characteristics were often more important for social mobility than the ethnic diversity of a person's neighbourhood, and that theories regarding potentially negative consequences of ethnic diversity should not be discounted without further investigation. As I showed in the Data and Method chapter, there is also an association between deprivation and each measure of ethnic diversity which may explain any reversal of the direction of effect on social mobility. Because of this uncertainty, I think that more testing is required before I can conclude support for the contact, protected market and ethnic enclave hypotheses. For example, does neighbourhood ethnic diversity have similar effects for each ethnic group? This and other tests are performed in the following chapters.

Finally, this chapter has also found reasonably clear evidence to suggest that after taking into account individual factors and the characteristics of neighbourhoods, the region in which people

lived in England did influence the likelihood of being socially mobile (upward and downward). This finding reflects a similar pattern reported in previous studies of regional differences in social mobility (Fielding, 1992). Simpson et al (2009) has previously demonstrated a north-south inequality in unemployment and I extend that work by showing a similar inequality of life chances for social class mobility. People in the South East tended to do better in every definition of class mobility that I tested, especially compared to persons in the northern regions. Therefore, if policymakers are to improve social mobility in England, it is also important to have an understanding of existing regional inequalities.

6.6.3 Strengths and weaknesses

Many of the strengths and weaknesses in this chapter are the same as those outlined in the previous chapter on economic activity/inactivity. Therefore, I will not explain them in great detail. In brief, the study was longitudinal, so therefore was able to objectively measure change in social class during ten years of a person's lifetime. The large number of multinomial dependent variables, accounting for upward and downward mobility from different social classes, was also an advantage over other studies which often only consider a single (aggregated) binary outcome with loss of information (e.g. (Platt, 2005a, 2007)).

The large sample size of the ONS LS data enabled these multinomial dependent variables to be tested. However, small numbers in some ethnic groups did limit my ability to draw reliable conclusions on the extent of ethnic inequalities in social mobility. With larger sample sizes in some of the ethnic minority groups, it may be that some of the statistically insignificant inequalities found in this chapter could become significant. However, there is no larger dataset for ethnic minority groups than the ONS LS in the UK which could be used to test this theory.

Finally, the longitudinal design also helped to order cause and effect. With all neighbourhood characteristics measured in 1991 as 'lagged' variables, the analyses in this chapter were at less risk of reverse causality than studies using cross-sectional data (as discussed in the Literature Review chapter). However, as the ONS LS is observational data, the neighbourhoods in which people lived in 1991 were not randomly assigned. Therefore, the analyses in this chapter cannot be considered free of selection bias that occurs when people select into neighbourhoods based upon unmeasured preferences and motives. This is a form of omitted variables bias which I must acknowledge, and for which there is no straightforward solution without the use of experimental data (Sampson, 2008)).

6.7 Conclusion

This study has enhanced our understanding of ethnic inequalities in social mobility (defined by transitions in occupationally-based social class) at the neighbourhood scale. It showed that ethnic inequalities persist even after controlling for neighbourhood deprivation and measures of ethnic diversity. However, ethnic inequalities were not always negative for ethnic minorities, who sometimes did better than their White peers. Neighbourhood deprivation was generally negative for upward mobility and positive for downward mobility for all people in this chapter. Evidence for an effect of neighbourhood ethnic diversity was less clear, though there was a generally positive effect of diversity on life chances. A north-south gradient in social mobility existed, with people in the South East doing better than those in the northern regions. Further research is required to investigate variation in life chances within each ethnic group.

7. Do neighbourhood deprivation and ethnic composition affect the economic status of White, Indian, and Black Caribbean people equally?

7.1 Introduction

Chapter 5 in my thesis investigated the effect of neighbourhood deprivation and ethnic diversity on ethnic inequalities in social mobility, defined by changes in economic status between 1991 and 2001. A key finding was that deprivation was consistently associated with social mobility, but ethnic diversity was not. These neighbourhood characteristics were modelled as main effects, for example, the effect of deprivation on people controlling for other factors like ethnicity. In this chapter, I extend my earlier analyses by investigating whether those neighbourhood effects were consistently important for all ethnic groups, or just some of them. In other words, the aim of this chapter is to study the effect of neighbourhood characteristics on the likelihood of change in economic status for individual ethnic groups.

In line with Chapter 5, social mobility in this chapter is defined as transitions between employment, unemployment, and economic inactivity for homemaking reasons. The following questions are addressed:

1) *To what extent is neighbourhood deprivation associated with change from employment or homemaking into unemployment and reduced chances of leaving unemployment across ethnic groups?*

2) *To what extent is neighbourhood ethnic diversity associated with change from employment or homemaking into unemployment and reduced chances of leaving unemployment across ethnic groups?*

3) *To what extent are changes in economic status associated with the concentration of co-ethnics within the neighbourhood?*

4) *Among ethnic minority groups, are changes in economic status associated with the concentration of non-White ethnic minorities within the neighbourhood?*

7.2 Data

7.2.1 Sample

Social mobility in this chapter is measured by change in economic status (employment, unemployment, or homemaking). The data in this chapter was taken from the ONS LS and sampled in the same way as in chapter 5 (18 years old and above in 1991, living in an urban ward in England in 1991, and also present in England in 2001). However, there are two major differences from chapter 5. First, the sample is now broken down in this chapter into separate ethnic and gender groups. As I reported in chapter 5, the sample sizes in each ethnic minority group vary. Among Indians and Black Caribbeans, the sample sizes are often reasonably large for separate analysis. However, for other ethnic minority groups, the sample sizes are too small to realistically obtain reliable results. The analyses in this chapter will focus on White, Indian and Black Caribbean ethnic groups only.

The second major change from chapter 5 is the addition of two new independent variables. These are explained below.

7.2.2 Dependent and independent variables

The dependent variables I focus on in this chapter are as follows:

Men:

1. Employment to unemployment
2. Unemployment to employment

Women:

7. Employment to unemployment
8. Employment to homemaking
9. Unemployment to employment
10. Unemployment to homemaking
11. Homemaking to employment
12. Homemaking to unemployment

I explore their level of association with several independent variables, all of which were defined in the Data and Method chapter:

Individual-level: age group; change in educational qualifications (1991-2001); change in couple status (1991-2001); migrant generation status (born in UK/overseas); internal migration within the UK; household tenure

Neighbourhood-level: deprivation (measured by the Townsend index); non-White concentration; ethnic diversity (measured by the Herfindahl index; co-ethnic concentration (the percentage of the ethnic group to which a person identifies); *other non-White* ethnic concentration (the percentage of all non-White ethnic minorities, minus the test group), all calculated for 1991 census wards

Region: 'Standard Region' of residence in 1991

7.3 Analysis

7.3.1 Descriptive statistics

Table 7-1 shows the percentage of employed men from each ethnic group in 1991 who remained employed, or became unemployed by 2001. 97% of White men who were employed in 1991, remained employed by 2001. In comparison 95% of Indian men and 93% of Black Caribbean men remained employed.

Table 7.1: Transition from employment to either employment or unemployment among men between 1991 and 2001

	White		Indian		Black Caribbean	
	N	%	N	%	N	%
Employed to Employed	67077	97	1692	95	481	93
Employed to Unemployed	1928	3	85	5	39	7
Total	69005		1777		520	

Source: ONS LS, created by the Author

Table 7-2 shows the percentage of men from the White and Indian groups who were unemployed in 1991 and became employed by 2001 was about the same at 83%. The sample size for Black Caribbean men in this type of social mobility was too small to do reliable analysis.

Table 7.2: Transitions from unemployment to unemployment or employment among men between 1991 and 2001

	White		Indian	
	N	%	N	%
Unemployed to Unemployed	915	17	27	17
Unemployed to Employed	4416	83	131	83
Total	5331		158	

Source: ONS LS, created by the Author

Table 7-3 shows the percentage of women from each ethnic group who were employed in 1991, and either remained employed, or moved into unemployment or homemaking by 2001. A similar percentage of women in each ethnic group remained employed by 2001. However, there were some differences among those who were socially mobile. A higher percentage of Indian and Black Caribbean women became unemployed than White women, but more White women became homemakers.

Table 7.3: Transitions from employment to employment, unemployment or homemaking among women between 1991 and 2001

	White		Indian		Black Caribbean	
	N	%	N	%	N	%
Employed to Employed	47660	88	1133	87	532	89
Employed to Unemployed	920	2	48	4	23	4
Employed to Homemaker	5815	11	115	9	43	7
Total	54395		1296		598	

Source: ONS LS, created by the Author

Table 7-4 illustrates the percentage of women in each ethnic group who were homemakers in 1991, and their economic activity in 2001. 36% of White women remained homemakers, which was lower than the percentage for Indian and Black Caribbean women. A lower percentage of Indian women moved from homemaking to employment (56%) than White women (60%), but a slightly higher percentage (White women 4%, Indian women 5%) moved to unemployment. An equivalent percentage for Black Caribbean women moving to unemployment was not included due to the small sample size.

Table 7.4: Transitions from homemaking to homemaking, employment or unemployment among women between 1991 and 2001

	White		Indian		Black Caribbean	
	N	%	N	%	N	%
Homemaker to Homemaker	6166	36	195	39	54	40
Homemaker to Employed	10298	60	277	56	80	60
Homemaker to Unemployed	711	4	25	5	.	.
Total	17175		497		134	

Source: ONS LS, created by the Author

7.3.2 Modelling strategy

The modelling strategy for this chapter shares similarities to that explained in chapter 5. Binary logit models were used for analyses where the dependent variables were binary coded (i.e. 0 = same economic status in 1991 and 2001; 1 = change in economic status). This was satisfactory for men, but not for women as their dependent variables contained three responses. Multinomial logit regression was used to model dependent variables with three responses among women.

These models were explained in more detail in chapter 5. Results of the models were presented as odds ratios using binary logit regression, and relative risk ratios when using multinomial logit

regression. Both of these ratios indicate the likelihood of social mobility occurring by 2001, versus the chance of remaining in the same economic status as was occupied in 1991. All models used the Huber White sandwich estimator and robust standard errors to adjust for the clustering of individuals within wards (UCLA: Academic Technology Services SCG, 2009).

7.4 Results

The results section of this chapter is split into five separate studies: one for each dependent variable. Descriptive statistics and univariate regression model results are presented first, with attention focused on patterning of social mobility by each of the neighbourhood characteristics. I then examine whether any important associations between social mobility and neighbourhood remained after controlling for the individual and household characteristics.

7.4.1 Study 1: Employment to unemployment among men

7.4.1.1 White men

Table 7-5 illustrates the descriptive and univariate model results for White men. For individual and household characteristics, the likelihood of becoming unemployed was significantly higher in older age, in non-couple statuses, with no qualifications, in renting household tenures and among non-movers. In terms of neighbourhood, the likelihood of becoming unemployed was

significantly higher in more deprived, non-White, ethnically diverse areas with low co-ethnic concentration.

Table 7.5: Univariate predictors of transitions from employment to employment or unemployment among White men between 1991 and 2001

	N Employed to Employed	N Employed to Unemployed	% Socially Mobile	Odds Ratio	95% CIs	p-value
Age						
18 to 29 (ref)	22,528	583	2.5			
30 to 39	21,068	545	2.5	1.01	0.89 - 1.13	0.919
40 to 54	23,481	800	3.3	1.32	1.18 - 1.47	<0.001
Couple status						
Couple 1991 & 2001 (ref)	37,129	789	2.1			
Single 1991 & 2001	14,842	741	4.8	2.36	2.12 - 2.61	<0.001
Couple 1991, Single 2001	5,133	239	4.4	2.22	1.91 - 2.57	<0.001
Single 1991, Couple 2001	9,973	159	1.6	0.77	0.65 - 0.92	0.003
Qualifications						
No qualifications (ref)	14,110	650	4.4			
Qualifications	13,425	243	1.8	0.39	0.34 - 0.46	<0.001
No qualifications in 1991, gained by 2001	39,502	1,034	2.6	0.57	0.52 - 0.63	<0.001
Household tenure						
Owner (ref)	56,746	1,341	2.3			
Private renter	3,363	136	3.9	1.72	1.44 - 2.06	<0.001
Social renter	6,708	438	6.1	2.80	2.51 - 3.13	<0.001
Migrant generation						
UK born (ref)	64,628	1,854	2.8			
Migrant	2,449	74	2.9	1.03	0.81 - 1.30	0.828
Internal migrant						
Non-mover (ref)	30,763	898	2.8			
Mover	36,292	1,027	2.8	0.97	0.89 - 1.07	0.565
Standard region 1991						
South East (ref)	24,603	614	2.4			
North	4,067	167	3.9	1.66	1.40 - 1.96	<0.001
Yorkshire	6,915	218	3.1	1.25	1.07 - 1.47	0.006
East Midlands	6,078	177	2.8	1.18	0.99 - 1.40	0.064
East Anglia	2,968	79	2.6	1.08	0.85 - 1.37	0.543
South West	6,523	142	2.1	0.87	0.72 - 1.04	0.126
West Midlands	7,439	271	3.5	1.46	1.27 - 1.69	<0.001
North West	8,478	260	3.0	1.22	1.05 - 1.41	0.011
Deprivation						
Low (ref)	22,297	447	2.0			
Moderate	22,064	593	2.6	1.34	1.19 - 1.51	<0.001
High	21,735	861	3.8	1.98	1.76 - 2.22	<0.001

Non-White Concentration						
Low (ref)	22,058	610	2.7			
Moderate	22,091	580	2.6	0.95	0.85 - 1.07	0.376
High	21,947	711	3.1	1.17	1.05 - 1.31	0.005
Ethnic diversity						
High (ref)	21,958	711	3.1			
Moderate	22,089	580	2.6	0.81	0.72 - 0.91	<0.001
Low	22,049	610	2.7	0.85	0.77 - 0.95	0.005

Source: ONS LS, created by the Author

Table 7-6 shows the results of the multivariate regressions for White men. After controlling for individual and household characteristics, men who lived in deprived neighbourhoods were significantly more likely to become unemployed than those in affluent areas (baseline model). Ethnic composition in the neighbourhood did not influence the effect of deprivation on social mobility. Furthermore, none of the ethnic composition variables were significantly associated with the likelihood of becoming unemployed after controlling for other characteristics.

Table 7.6: Multivariate predictors of transitions from employment to employment or unemployment among White men between 1991 and 2001

	Baseline			Baseline + non-White %			Baseline + Ethnic diversity		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)									
30 to 39	**1.28**	**1.12**	**1.45**	**1.27**	**1.12**	**1.45**	**1.27**	**1.12**	**1.45**
40 to 54	**1.81**	**1.58**	**2.07**	**1.80**	**1.58**	**2.06**	**1.80**	**1.58**	**2.06**
Couple status (ref: couple in 1991 and 2001)									
Single 1991 & 2001	**2.50**	**2.23**	**2.80**	**2.49**	**2.23**	**2.79**	**2.49**	**2.23**	**2.79**
Couple 1991, Single 2001	**2.20**	**1.88**	**2.56**	**2.20**	**1.89**	**2.57**	**2.20**	**1.89**	**2.57**
Single 1991, Couple 2001	0.95	0.79	1.15	0.95	0.79	1.15	0.95	0.79	1.15
Qualifications (ref: none)									
Qualifications	**0.56**	**0.48**	**0.66**	**0.56**	**0.47**	**0.66**	**0.56**	**0.47**	**0.66**
No qualifications in 1991, gained by 2001	**0.72**	**0.64**	**0.80**	**0.72**	**0.64**	**0.80**	**0.72**	**0.64**	**0.80**
Household tenure (ref: owner)									
Private renter	**1.55**	**1.29**	**1.88**	**1.55**	**1.28**	**1.87**	**1.55**	**1.28**	**1.87**
Social renter	**2.06**	**1.83**	**2.32**	**2.07**	**1.83**	**2.33**	**2.07**	**1.83**	**2.33**
Migrant generation (ref: UK born)									
Migrant	1.04	0.82	1.32	1.03	0.81	1.31	1.03	0.81	1.31
Internal migrant (ref: non-mover)									
Mover	1.07	0.96	1.18	1.06	0.96	1.18	1.06	0.96	1.18
Deprivation (ref: low)									
Moderate	**1.19**	**1.05**	**1.35**	**1.18**	**1.04**	**1.33**	**1.18**	**1.04**	**1.33**
High	**1.44**	**1.28**	**1.62**	**1.41**	**1.24**	**1.60**	**1.41**	**1.24**	**1.60**
Non-White Concentration (ref: low)									
Moderate				1.01	0.90	1.14			
High				1.07	0.94	1.21			
Ethnic diversity (ref: high)									
Moderate							0.95	0.84	1.07
Low							0.94	0.82	1.07

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

7.4.1.2 Indian men

Table 7-7 illustrates the descriptive statistics and univariate regression results for Indian men employed in 1991. The likelihood of becoming unemployed was significantly higher among older men and those with no qualifications. Indian men living in more deprived neighbourhoods appeared significantly more likely to become unemployed. Also, those in neighbourhoods with a high *other non-White* ethnic concentration were also significantly more at risk of becoming unemployed. No other neighbourhood characteristics were associated with this type of social mobility among Indian men.

Table 7.7: Univariate predictors of transitions from employment to employment or unemployment among Indian men between 1991 and 2001

	N Employed to Employed	N Employed to Unemployed	% Socially Mobile	Odds Ratio	95% CIs	p-value
Age						
18 to 29 (ref)	407	16	3.8	0.91	0.46 - 1.80	0.782
30 to 39	712	25	3.4	2.06	1.11 - 3.81	0.021
40 to 54	573	44	7.1			
Couple status						
Couple 1991 & 2001 (ref)	1,367	69	4.8			
Single 1991 & 2001	89	BLANKED	6.3	1.44	0.60 - 3.42	0.415
Couple 1991, Single 2001	49	BLANKED	9.3	2.12	0.81 - 5.52	0.125
Single 1991, Couple 2001	187	BLANKED	2.6	0.55	0.22 - 1.40	0.209
Qualifications						
No qualifications (ref)	479	34	6.6			
Qualifications	384	13	3.3	0.49	0.25 - 0.96	0.037
No qualifications in 1991, gained by 2001	827	38	4.4	0.65	0.40 - 1.07	0.092
Household tenure						
Owner (ref)	1,543	78	4.8			
Private renter	63	BLANKED	4.5	0.67	0.17 - 2.75	0.582
Social renter	83	BLANKED	4.6	0.99	0.35 - 2.76	0.977
Migrant generation						
UK born (ref)	174	BLANKED	4.9			
Migrant	1,518	76	4.8	0.93	0.46 - 1.89	0.846
Internal migrant						
Non-mover (ref)	982	55	5.3			
Mover	708	29	3.9	0.73	0.45 - 1.18	0.201

Standard region 1991						
South East (ref)	924	34	3.5			
North	24	BLANKED	11.1	2.31	0.55 - 9.76	0.254
Yorkshire	75	BLANKED	3.8	1.11	0.36 - 2.40	0.855
East Midlands	202	14	6.5	1.95	1.04 - 3.68	0.039
East Anglia	17	BLANKED				
South West	19	BLANKED				
West Midlands	347	25	6.7	1.93	1.12 - 3.32	0.017
North West	84	BLANKED	7.7	2.31	1.02 - 5.26	0.045
Deprivation						
Low (ref)	564.0	21	3.6			
Moderate	558.0	26	4.5	1.25	0.69 - 2.28	0.463
High	547.0	35	6.0	1.77	1.03 - 3.04	0.040
Non-White Concentration						
Low (ref)	561.0	24	4.1			
Moderate	561.0	24	4.1	1.00	0.56 - 1.78	1.000
High	547.0	34	5.9	1.50	0.88 - 2.54	0.137
Ethnic diversity						
High (ref)	552	34	5.8			
Moderate	557	25	4.3	0.73	0.42 - 1.26	0.253
Low	560	23	3.9	0.70	0.41 - 1.18	0.177
Co-Ethnic Concentration						
Low (ref)	561	23	3.9			
Moderate	562	27	4.6	1.17	0.67 - 2.06	0.581
High	546	32	5.5	1.47	0.85 - 2.55	0.163
Other Non-White **Ethnic Concentration**						
Low (ref)	566	19	3.2			
Moderate	559	27	4.6	1.44	0.79 - 2.63	0.238
High	544	36	6.2	2.03	1.16 - 3.54	0.013

Source: ONS LS, created by the Author

Table 7-8 illustrates the results of the multivariate models. After controlling for individual characteristics, deprivation was no longer significantly associated with social mobility. It did seem that deprivation was consistently associated with becoming unemployed, although not significantly. On the other hand, Indian men in more *other non-White* ethnically concentrated neighbourhoods remained significantly more likely to become unemployed.

Table 7.8: Multivariate predictors of transitions from employment to employment or unemployment among Indian men between 1991 and 2001

	Baseline			Baseline + non-White %			Baseline + Ethnic diversity			Baseline + co-ethnic %			Baseline + other-ethnic %		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	0.92	0.41	2.09	0.93	0.41	2.11	0.92	0.40	2.11	0.93	0.41	2.13	0.95	0.41	2.21
40 to 54	**2.36**	**1.04**	**5.35**	**2.40**	**1.06**	**5.41**	**2.40**	**1.06**	**5.42**	**2.42**	**1.07**	**5.49**	**2.50**	**1.09**	**5.72**
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	1.99	0.66	5.94	2.03	0.67	6.10	2.08	0.69	6.29	2.01	0.67	6.03	2.08	0.70	6.24
Couple 1991, Single 2001	2.01	0.72	5.57	2.01	0.71	5.70	2.06	0.74	5.75	2.01	0.70	5.75	2.30	0.80	6.60
Single 1991, Couple 2001	0.75	0.25	2.24	0.75	0.25	2.26	0.76	0.25	2.26	0.75	0.25	2.25	0.74	0.25	2.23
Qualifications (ref: none)															
Qualifications	0.63	0.31	1.26	0.63	0.31	1.27	0.62	0.31	1.26	0.64	0.32	1.29	0.63	0.31	1.30
No qualifications in 1991, gained by 2001	0.80	0.47	1.38	0.79	0.46	1.36	0.79	0.46	1.35	0.80	0.47	1.38	0.78	0.45	1.35
Household tenure (ref: owner)															
Private renter	0.69	0.15	3.18	0.70	0.15	3.22	0.69	0.15	3.15	0.71	0.15	3.32	0.73	0.16	3.27
Social renter	0.93	0.32	2.68	0.96	0.33	2.79	0.94	0.32	2.76	0.98	0.33	2.86	0.94	0.32	2.78
Migrant generation (ref: UK born)															
Migrant	0.73	0.28	1.87	0.71	0.27	1.85	0.72	0.28	1.87	0.72	0.28	1.88	0.69	0.26	1.83
Internal migrant (ref: non-mover)															
Mover	0.83	0.48	1.44	0.84	0.48	1.45	0.84	0.48	1.45	0.84	0.49	1.46	0.82	0.46	1.45
Deprivation (ref: low)															
Moderate	1.22	0.66	2.28	1.09	0.57	2.09	1.13	0.59	2.15	1.13	0.60	2.10	0.79	0.40	1.56
High	1.75	0.99	3.12	1.42	0.67	3.02	1.46	0.70	3.05	1.55	0.81	2.97	0.85	0.39	1.86
Non-White Concentration (ref: low)															
Moderate				0.99	0.51	1.90									
High				1.39	0.68	2.85									
Ethnic diversity (ref: high)															
Moderate							0.71	0.39	1.29						
Low							0.73	0.36	1.47						
Co-Ethnic Concentration (ref: low)															
Moderate										1.14	0.61	2.11			
High										1.32	0.70	2.49			
***Other Non-White* Concentration (ref: low)**															
Moderate													1.97	0.96	4.07
High													**3.63**	**1.57**	**8.38**

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

7.4.1.3 Black Caribbean men

Table 7-9 shows the descriptive statistics and univariate regression model results for Black Caribbean men who were employed in 1991. Those in socially rented households were significantly more likely to become unemployed compared to homeowners. Ethnic diversity was associated with social mobility, but deprivation was not significantly associated with social mobility. Black Caribbean men in more non-White and ethnically diverse neighbourhoods were at significantly greater risk of becoming unemployed.

Table 7.9: Univariate predictors of transitions from employment to employment or unemployment among Black Caribbean men between 1991 and 2001

	N Employed to Employed	N Employed to Unemployed	% Socially Mobile	Odds Ratio	95% CIs	p-value
Age						
18 to 29 (ref)	190	15	7.3			
30 to 39	148	BLANKED	5.1	0.64	0.25 - 1.61	0.339
40 to 54	143	16	10.1	1.50	0.73 - 3.10	0.270
Couple status						
Couple 1991 & 2001 (ref)	182	16	8.1			
Single 1991 & 2001	176	15	7.9	0.90	0.41 - 1.95	0.790
Couple 1991, Single 2001	46	BLANKED	6.1	0.49	0.11 - 2.24	0.359
Single 1991, Couple 2001	77	BLANKED	7.2	0.74	0.27 - 2.09	0.575
Qualifications						
No qualifications (ref)	115	15	11.5			
Qualifications	50	BLANKED	0.0	0.16	0.02 - 1.31	0.089
No qualifications in 1991, gained by 2001	316	23	6.8	0.58	0.29 - 1.16	0.120
Household tenure						
Owner (ref)	357	21	5.6			
Private renter	23	BLANKED	11.5	1.62	0.35 - 7.41	0.535
Social renter	101	15	12.9	2.64	1.27 - 5.51	0.009
Migrant generation						
UK born (ref)	234	19	7.5			
Migrant	247	20	7.5	1.00	0.52 - 1.93	0.999
Internal migrant						
Non-mover (ref)	218	19	8.0			
Mover	262	20	7.1	0.89	0.46 - 1.70	0.715
Standard region 1991						
South East (ref)	313	24	7.1			

North	0	BLANKED				
Yorkshire	31	BLANKED	8.8	0.92	0.21 - 4.01	0.906
East Midlands	26	BLANKED	0.0	0.57	0.07 - 4.40	0.587
East Anglia	6	BLANKED	0.0			
South West	18	BLANKED	0.0			
West Midlands	74	BLANKED	10.8	1.73	0.75 - 0.97	0.201
North West	12	BLANKED	20.0	3.55	0.92 - 13.72	0.067
Deprivation						
Low (ref)	162	BLANKED	5.3			
Moderate	159	BLANKED	5.9	1.13	0.46 - 2.81	0.789
High	153	17	10.0	2.00	0.86 - 4.64	0.106
Non-White Concentration						
Low (ref)	163	BLANKED	4.1			
Moderate	159	11	6.5	1.61	0.61 - 4.27	0.338
High	152	18	10.6	2.76	1.13 - 6.75	0.026
Ethnic diversity						
High (ref)	153	18	10.5			
Moderate	158	11	6.5	0.59	0.27 - 1.28	0.182
Low	163	BLANKED	4.1	0.37	0.15 - 0.89	0.027
Co-Ethnic Concentration						
Low (ref)	162	BLANKED	4.7			
Moderate	162	12	6.9	1.50	0.60 - 3.77	0.388
High	150	16	9.6	2.16	0.90 - 5.17	0.084
***Other Non-White* Concentration**						
Low (ref)	163	BLANKED	4.1			
Moderate	157	13	7.6	1.93	0.76 - 4.91	0.169
High	154	16	9.4	2.42	0.96 - 6.07	0.060

Source: ONS LS, created by the Author

Table 7-10 presents the results of the multivariate logit models for Black Caribbean men. In these models, Black Caribbean men who rented social housing remained at significantly higher risk of becoming unemployed compared to Black Caribbean homeowners. After controlling for individual characteristics, neighbourhood deprivation was associated with an increased risk of unemployment. However, this association was not statistically significant and became negative after controlling for ethnic composition. The measures of neighbourhood ethnic diversity also remained significantly associated with social mobility.

Table 7.10: Multivariate predictors of transitions from employment to employment or unemployment among Black Caribbean men between 1991 and 2001

	Baseline			Baseline + non-White %			Baseline + Ethnic diversity			Baseline + co-ethnic %			Baseline + other-ethnic %		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	1.03	0.32	3.27	1.03	0.33	3.16	1.03	0.33	3.17	1.02	0.33	3.15	1.03	0.33	3.23
40 to 54	2.93	0.59	14.54	2.86	0.62	13.26	2.85	0.61	13.26	2.77	0.59	13.04	2.89	0.61	13.78
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	0.64	0.25	1.68	0.62	0.25	1.58	0.62	0.25	1.57	0.64	0.25	1.62	0.62	0.24	1.59
Couple 1991, Single 2001	0.46	0.09	2.27	0.42	0.09	2.02	0.42	0.09	2.02	0.45	0.09	2.13	0.45	0.09	2.17
Single 1991, Couple 2001	0.57	0.18	1.85	0.53	0.17	1.63	0.53	0.17	1.63	0.56	0.18	1.76	0.54	0.17	1.66
Qualifications (ref: none)															
Qualifications	0.26	0.03	2.53	0.25	0.03	2.41	0.25	0.03	2.42	0.25	0.03	2.41	0.26	0.03	2.54
No qualifications in 1991, gained by 2001	0.71	0.27	1.85	0.67	0.25	1.77	0.67	0.25	1.77	0.64	0.24	1.71	0.70	0.27	1.80
Household tenure (ref: owner)															
Private renter	2.39	0.47	12.14	2.37	0.48	11.74	2.38	0.48	11.81	2.56	0.50	13.20	2.32	0.45	11.97
Social renter	**2.52**	**1.14**	**5.56**	**2.74**	**1.24**	**6.02**	**2.74**	**1.25**	**6.04**	**2.75**	**1.24**	**6.09**	**2.65**	**1.18**	**5.95**
Migrant generation (ref: UK born)															
Migrant	0.43	0.12	1.51	0.40	0.12	1.37	0.41	0.12	1.38	0.42	0.12	1.39	0.42	0.12	1.44
Internal migrant (ref: non-mover)															
Mover	1.09	0.52	2.28	1.07	0.51	2.27	1.07	0.51	2.27	1.08	0.52	2.26	1.05	0.50	2.23
Deprivation (ref: low)															
Moderate	1.05	0.43	2.59	0.68	0.27	1.71	0.68	0.27	1.72	0.77	0.31	1.94	0.73	0.27	1.93
High	1.34	0.56	3.21	0.69	0.25	1.86	0.69	0.25	1.87	0.79	0.31	2.04	0.83	0.32	2.18
Non-White Concentration (ref: low)															
Moderate				2.14	0.70	6.62									
High				**3.34**	**1.09**	**10.29**									
Ethnic diversity (ref: high)															
Moderate							0.65	0.28	1.49						
Low							**0.30**	**0.10**	**0.93**						
Co-Ethnic Concentration (ref: low)															
Moderate										1.78	0.64	4.92			
High										2.53	0.82	7.77			
***Other Non-White* Concentration (ref: low)**															
Moderate													2.38	0.78	7.30
High													2.55	0.87	7.52

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Summary of Study 1

The results of this study have revealed some similarities with those reported in chapter 5. Deprivation, for example, was a significant predictor of becoming unemployed among White men. Ethnic diversity, whether measured by the percentage non-White concentration or by ethnic diversity, had no significant influence on social mobility among White men. These results are in agreement with those from chapter 5. However, there are some differences too, which are revealed as a result of investigating ethnic groups individually. For example, deprivation was significantly associated with the likelihood of becoming unemployed among Indian men in the univariate logit model. Once controlling for other individual and household characteristics though, the deprivation effect was no longer statistically significant. In comparison, deprivation was not significantly related to the likelihood of becoming unemployed among Black Caribbean men before, or after, controlling for other important factors.

A second important finding of this study is that the ethnic composition of the neighbourhood appears to have a selective influence on social mobility. Among White men, there was no significant influence of any measure of neighbourhood ethnic composition. On the other hand, for Indian men, the increasing presence of *other non-White* ethnic minorities within the neighbourhood was associated with a significantly greater risk of becoming unemployed. This association was not significant for Black Caribbean men, for whom the ethnic diversity and presence of non-White persons in the neighbourhood appeared to be significantly associated with the risk of becoming unemployed.

7.4.2 Study 2: Unemployment to employment among men

7.4.2.1 White men

In this study I investigate transitions from unemployment to employment among men. Table 7-11 shows descriptive statistics and univariate logit regression models for White men. The likelihood of finding employment was significantly higher among younger White men, those in a couple, with educational qualifications, homeowners and movers. White men in more deprived neighbourhoods were significantly less likely to find employment compared to those in more affluent areas. Furthermore, White men in neighbourhoods with a moderate level of ethnic diversity were significantly more likely to find employment compared to those in the most diverse areas.

Table 7.11: Univariate predictors of transitions from unemployment to unemployment or employment among White men between 1991 and 2001

	N Unemployed to Unemployed	N Unemployed to employed	% Socially Mobile	Odds Ratio	95% CIs	p-value
Age						
18 to 29 (ref)	449	2,357	84.0			
30 to 39	232	1,126	82.9	0.94	0.79 - 1.11	0.447
40 to 54	234	933	79.9	0.75	0.63 - 0.90	0.002
Couple status						
Couple 1991 & 2001 (ref)	158	1,420	90.0			
Single 1991 & 2001	618	1,896	75.4	0.34	0.28 - 0.41	<0.001
Couple 1991, Single 2001	76	310	80.3	0.47	0.35 - 0.63	<0.001
Single 1991, Couple 2001	63	790	92.6	1.39	1.03 - 1.88	0.033
Qualifications						
No qualifications (ref)	419	1,310	75.8			
Qualifications	40	349	89.7	2.78	1.98 - 3.91	<0.001
No qualifications in 1991, gained by 2001	456	2,755	85.8	1.91	1.65 - 2.22	<0.001
Household tenure						
Owner (ref)	339	2,577	88.4			
Private renter	118	407	77.5	0.45	0.36 - 0.57	<0.001
Social renter	446	1,404	75.9	0.42	0.36 - 0.49	<0.001
Migrant generation						

UK born (ref)	882	4,249	82.8			
Migrant	33	167	83.5	1.02	0.70 - 1.48	0.915
Internal migrant						
Non-mover (ref)	412	1,553	79.0			
Mover	502	2,859	85.1	1.51	1.31 - 1.74	<0.001
Standard region 1991						
South East (ref)	231	1,486	86.5			
North	114	355	75.7	0.49	0.38 - 0.63	<0.001
Yorkshire	142	504	78.0	0.56	0.44 - 0.71	<0.001
East Midlands	78	372	82.7	0.75	0.57 - 0.99	0.039
East Anglia	25	173	87.4	1.05	0.67 - 1.64	0.845
South West	43	431	90.9	1.54	1.08 - 2.21	0.017
West Midlands	116	440	79.1	0.60	0.46 - 0.77	<0.001
North West	166	655	79.8	0.62	0.50 - 0.78	<0.001
Deprivation						
Low (ref)	196	1,553	88.8			
Moderate	276	1,473	84.2	0.67	0.55 - 0.82	<0.001
High	427	1,311	75.4	0.39	0.32 - 0.47	<0.001
Non-White Concentration						
Low (ref)	296	1,450	83.0			
Moderate	277	1,468	84.1	1.08	0.90 - 1.30	0.402
High	326	1,419	81.3	0.89	0.75 - 1.06	0.190
Ethnic diversity						
High (ref)	326	1,421	81.3			
Moderate	278	1,466	84.1	1.21	1.01 - 1.45	0.040
Low	295	1,450	83.1	1.13	0.95 - 1.35	0.183

Source: ONS LS, created by the Author

Table 7-12 reports the results of the multivariate logit models for White men. After controlling for individual and household characteristics, White men in deprived neighbourhoods remained significantly less likely to find employment. No measure of neighbourhood ethnic composition was related to this type of social mobility.

Table 7.12: Multivariate predictors of transitions from unemployment to unemployment or employment among White men between 1991 and 2001

	Baseline			Baseline + non-White %			Baseline + Ethnic diversity		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)									
30 to 39	0.85	0.70	1.03	0.85	0.70	1.03	0.85	0.70	1.03
40 to 54	**0.61**	**0.49**	**0.75**	**0.61**	**0.49**	**0.76**	**0.61**	**0.49**	**0.76**
Couple status (ref: couple in 1991 and 2001)									
Single 1991 & 2001	**0.27**	**0.22**	**0.34**	**0.27**	**0.22**	**0.34**	**0.27**	**0.22**	**0.34**
Couple 1991, Single 2001	**0.39**	**0.28**	**0.53**	**0.39**	**0.28**	**0.53**	**0.39**	**0.28**	**0.53**
Single 1991, Couple 2001	0.99	0.71	1.37	0.99	0.71	1.37	0.99	0.71	1.37
Qualifications (ref: none)									
Qualifications	**1.88**	**1.32**	**2.69**	**1.90**	**1.33**	**2.72**	**1.90**	**1.33**	**2.72**
No qualifications in 1991, gained by 2001	**1.65**	**1.40**	**1.94**	**1.65**	**1.40**	**1.94**	**1.65**	**1.40**	**1.94**
Household tenure (ref: owner)									
Private renter	**0.48**	**0.37**	**0.61**	**0.48**	**0.37**	**0.62**	**0.48**	**0.37**	**0.62**
Social renter	**0.55**	**0.46**	**0.65**	**0.55**	**0.46**	**0.65**	**0.55**	**0.46**	**0.65**
Migrant generation (ref: UK born)									
Migrant	0.89	0.59	1.33	0.90	0.60	1.34	0.90	0.60	1.34
Internal migrant (ref: non-mover)									
Mover	**1.40**	**1.18**	**1.66**	**1.40**	**1.18**	**1.66**	**1.40**	**1.18**	**1.66**
Deprivation (ref: low)									
Moderate	0.83	0.67	1.02	0.83	0.67	1.03	0.83	0.67	1.03
High	**0.60**	**0.49**	**0.73**	**0.61**	**0.49**	**0.75**	**0.61**	**0.49**	**0.75**
Non-White Concentration (ref: low)									
Moderate				1.04	0.85	1.26			
High				0.97	0.78	1.20			
Ethnic diversity (ref: high)									
Moderate							1.07	0.87	1.30
Low							1.03	0.83	1.28

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

7.4.2.2 Indian men

Table 7-13 shows the descriptive statistics and univariate model results for Indian men. Few independent variables were significantly associated with the likelihood of finding employment. Indian men living in less ethnically diverse neighbourhoods were over three times more likely to find employment than those in more diverse areas. In comparison, Indian men in more co-ethnically concentrated neighbourhoods were significantly less likely to become employed.

Table 7.13: Univariate predictors of transitions from unemployment to unemployment or employment among Indian men between 1991 and 2001

	N Unemployed to Unemployed	N Unemployed to employed	% Socially Mobile	Odds Ratio	95% CIs	p-value
Age						
18 to 29 (ref)	13	60	82.2			
30 to 39	11	45	80.4	0.73	0.29 - 1.85	0.504
40 to 54	BLANKED	26	89.7	1.52	0.45 - 5.79	0.461
Couple status						
Couple 1991 & 2001 (ref)	15	86	85.1			
Single 1991 & 2001	BLANKED	19	76.0	0.59	0.21 - 1.71	0.334
Couple 1991, Single 2001	BLANKED	BLANKED	62.5	0.33	0.05 - 2.03	0.231
Single 1991, Couple 2001	BLANKED	21	84.0	0.87	0.25 - 3.01	0.819
Qualifications						
No qualifications (ref)	13	37	74.0			
Qualifications	BLANKED	11	100.0			
No qualifications in 1991, gained by 2001	14	83	85.6	2.08	0.88 - 4.88	0.094
Household tenure						
Owner (ref)	20	106	84.1			
Private renter	BLANKED	12	80.0	1.11	0.22 - 5.49	0.901
Social renter	BLANKED	13	76.5	0.60	0.17 - 2.10	0.424
Migrant generation						
UK born (ref)	BLANKED	39	86.7			
Migrant	21	92	81.4	0.72	0.29 - 1.83	0.489
Internal migrant						
Non-mover (ref)	14	68	82.9			
Mover	13	63	82.9	1.20	0.51 - 2.79	0.679
Standard region 1991						
South East (ref)	12	64	84.2			
North	BLANKED	BLANKED				

Yorkshire	BLANKED	11	100.0			
East Midlands	BLANKED	15	83.3	1.33	0.29 - 6.08	0.713
East Anglia	BLANKED	BLANKED				
South West	BLANKED	BLANKED	100.0			
West Midlands	11	30	73.2	0.53	0.19 - 1.47	0.222
North West	BLANKED	BLANKED	50.0	0.27	0.04 - 1.78	0.173
Deprivation						
Low (ref)	BLANKED	45	86.5			
Moderate	BLANKED	47	90.4	1.46	0.45 - 4.80	0.531
High	12	36	75.0	0.43	0.15 - 1.22	0.112
Non-White Concentration						
Low (ref)	BLANKED	47	92.2			
Moderate	10	41	80.4	0.35	0.10 - 1.24	0.103
High	10	40	80.0	0.31	0.09 - 1.07	0.063
Ethnic diversity						
High (ref)	13	40	75.5			
Moderate	BLANKED	41	83.7	1.67	0.59 - 4.72	0.337
Low	BLANKED	47	94.0	3.82	1.14 - 12.77	0.030
Co-Ethnic Concentration						
Low (ref)	BLANKED	48	94.1			
Moderate	12	39	76.5	0.20	0.05 - 0.80	0.022
High	BLANKED	41	82.0	0.26	0.07 - 1.00	0.050
Other Non-White **Concentration**						
Low (ref)	BLANKED	46	90.2			
Moderate	BLANKED	43	84.3	0.58	0.17 - 1.99	0.390
High	11	39	78.0	0.35	0.11 - 1.13	0.078

Source: ONS LS, created by the Author

Table 7-14 shows the multivariate results for Indian men and the likelihood of finding employment. After controlling for individual and household characteristics, the associations between social mobility and neighbourhood ethnic concentration were no longer statistically significant. A moderate level of non-White concentration became significantly associated with a reduced likelihood of finding employment.

Table 7.14: Multivariate predictors of transitions from unemployment to unemployment or employment among Indian men between 1991 and 2001

	Baseline			Baseline + non-White %			Baseline + Ethnic diversity			Baseline + co-ethnic %			Baseline + other-ethnic %		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	1.25	0.32	4.92	1.43	0.35	5.78	1.30	0.33	5.20	0.94	0.21	4.16	1.21	0.30	4.90
40 to 54	2.17	0.41	11.52	2.63	0.51	13.53	2.09	0.40	10.95	1.53	0.28	8.42	2.10	0.40	11.02
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	0.27	0.06	1.28	0.27	0.05	1.44	0.29	0.06	1.43	0.28	0.05	1.59	0.29	0.06	1.38
Couple 1991, Single 2001	**0.14**	**0.02**	**1.02**	**0.12**	**0.02**	**0.82**	0.15	0.02	1.11	0.16	0.02	1.33	0.12	0.01	1.05
Single 1991, Couple 2001	0.28	0.06	1.25	**0.23**	**0.05**	**0.99**	0.29	0.07	1.24	0.25	0.05	1.25	0.28	0.07	1.23
Qualifications (ref: none)															
Qualifications	(omitted)			(omitted)			(omitted)			(omitted)			(omitted)		
No qualifications in 1991, gained by 2001	2.31	0.75	7.14	2.78	0.81	9.51	2.65	0.81	8.71	2.39	0.67	8.46	2.61	0.82	8.32
Household tenure (ref: owner)															
Private renter	0.91	0.16	5.16	0.89	0.15	5.39	0.88	0.14	5.47	0.79	0.12	5.12	1.05	0.16	6.80
Social renter	0.81	0.16	4.02	0.66	0.14	3.17	0.62	0.12	3.30	0.57	0.11	3.05	0.74	0.12	4.39
Migrant generation (ref: UK born)															
Migrant	0.37	0.10	1.38	0.40	0.10	1.54	0.48	0.14	1.68	0.51	0.12	2.11	0.45	0.13	1.61
Internal migrant (ref: non-mover)															
Mover	1.22	0.41	3.59	1.16	0.38	3.53	1.03	0.35	3.00	1.19	0.39	3.62	1.05	0.33	3.34
Deprivation (ref: low)															
Moderate	1.29	0.33	5.06	1.81	0.36	9.04	2.42	0.49	11.99	1.78	0.41	7.71	2.35	0.53	10.43
High	0.50	0.14	1.81	0.69	0.17	2.84	1.07	0.26	4.45	0.77	0.20	2.88	1.00	0.24	4.24
Non-White Concentration (ref: low)															
Moderate				**0.19**	**0.04**	**0.88**									
High				0.39	0.07	2.35									
Ethnic diversity (ref: high)															
Moderate							0.98	0.26	3.63						
Low							4.32	0.78	23.81						
Co-Ethnic Concentration (ref: low)															
Moderate										0.22	0.05	1.07			
High										0.34	0.06	2.07			
Other Non-White Concentration (ref: low)															
Moderate													0.29	0.06	1.33
High													0.28	0.05	1.47

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Summary of Study 2

This study examined transitions from unemployment to employment among White and Indian men. Along with study 1, the results for each ethnic group are different. For unemployed White men, the likelihood of finding employment was significantly reduced if they lived in a deprived neighbourhood. Along with the lack of significant association between this type of social mobility and the neighbourhood ethnic composition measures, these results are in agreement with what I found in chapter 5.

For Indian men, the story is slightly different. For example, the likelihood of finding employment did not significantly vary between those living in deprived neighbourhoods and those in more affluent areas. For Indian men, couple status appeared to be more important than other characteristics, including the measures of neighbourhood ethnic composition.

7.4.3 Study 3: Employment to unemployment or homemaker among women

7.4.3.1 White women

This study focuses on women who were employed in 1991 and their transitions to either unemployment or homemaking by 2001. Table 7-15 shows the descriptive statistics and univariate multinomial logit regression model results for White women. The likelihood of becoming unemployed was significantly higher for single women, those without qualifications, living in rented households, and those who moved household between 1991 and 2001. Women

living in more deprived neighbourhoods were significantly more likely to become unemployed compared to those in more affluent areas. In comparison, White women in neighbourhoods with a moderate level of non-White concentration, or those with a moderate level of diversity and co-ethnic concentration, were all significantly less likely to become unemployed than those in each respective reference category.

Table 7-15 also shows descriptive statistics and univariate results for employed White women and the likelihood of becoming homemakers. This transition was significantly more likely among younger women, those in couples, without qualifications, who rented their households and moved home between 1991 and 2001. Employed women in neighbourhoods with a higher level of deprivation, with more non-White concentration, more ethnic diversity, and a low co-ethnic concentration were all significantly more likely to become homemakers than those in the respective reference categories.

Table 7.15: Univariate predictors of transitions from employment to employment, unemployment or homemaking among White women between 1991 and 2001

	N Employed to Employed	N Employed to Unemployed	% Socially Mobile	Odds Ratio	95% CIs	p-value	N Employed to Homemaker	% Socially Mobile	Odds Ratio	95% CIs	p-value
Age											
18 to 29 (ref)	17,385	364	1.7				3,257	15.5			
30 to 39	15,241	283	1.7	0.88	0.76 - 1.04	0.124	1,112	6.7	0.39	0.36 - 0.42	<0.001
40 to 49	15,034	273	1.6	0.86	0.73 - 1.01	0.058	1,446	8.6	0.52	0.48 - 0.55	<0.001
Couple status											
Couple 1991 & 2001 (ref)	24,555	328	1.2				2,757	10.0			
Single 1991 & 2001	11,257	339	2.7	2.25	1.93 - 2.63	<0.001	988	7.9	0.80	0.73 - 0.85	<0.001
Couple 1991, Single 2001	4,762	145	2.7	2.27	1.86 - 2.77	<0.001	378	7.2	0.71	0.64 - 0.80	<0.001
Single 1991, Couple 2001	7,086	108	1.2	1.17	0.94 - 1.46	0.170	1,692	19.0	2.12	1.98 - 2.26	<0.001
Qualifications											
No qualifications (ref)	9,187	231	2.1				1,507	13.8			
Qualifications	8,809	94	1.0	0.42	0.33 - 0.54	<0.001	702	7.3	0.49	0.44 - 0.54	<0.001
No qualifications in 1991, gained by 2001	29,647	593	1.8	0.79	0.68 - 0.93	0.004	3,604	10.6	0.74	0.69 - 0.79	<0.001
Household tenure											
Owner (ref)	39,907	664	1.5				4,529	10.0			
Private renter	2,566	65	2.1	1.54	1.19 - 1.99	0.001	454	14.7	1.58	1.42 - 1.76	<0.001
Social renter	5,035	190	3.2	2.26	1.91 - 2.67	<0.001	806	13.4	1.42	1.31 - 1.54	<0.001
Migrant generation											
UK born (ref)	45,832	874	1.7				5,608	10.7			
Migrant	1,828	46	2.2	1.34	0.99 - 1.80	0.057	207	9.9	0.93	0.80 - 1.08	0.314
Internal migrant											
Non-mover (ref)	22,121	359	1.5				1,904	7.8			
Mover	25,523	561	1.9	1.35	1.18 - 1.55	<0.001	3,909	13.0	1.78	1.68 - 1.89	<0.001
Standard region 1991											
South East (ref)	16,944	326	1.7				2,415	12.3			
North	3,024	48	1.4	0.00	0.00 - 0.00	<0.001	329	9.7	1.76	0.20 - 15.82	0.612
Yorkshire	5,140	109	1.9	0.83	0.61 - 1.14	0.248	582	10.0	0.76	0.67 - 0.87	<0.001

East Midlands	4,228	93	1.9	1.11	0.89 - 1.38	0.348	490	10.2	0.79	0.72 - 0.87	<0.001
East Anglia	1,990	37	1.6	1.15	0.92 - 1.45	0.227	247	10.9	0.82	0.74 - 0.91	<0.001
South West	4,595	94	1.8	0.97	0.70 - 1.35	0.860	550	10.5	0.87	0.75 - 1.00	0.052
West Midlands	5,116	108	1.9	1.03	0.82 - 1.30	0.810	552	9.6	0.85	0.77 - 0.93	0.001
North West	6,619	105	1.4	1.10	0.88 - 1.40	0.404	649	8.8	0.76	0.69 - 0.84	<0.001
Deprivation											
Low (ref)	15839	250	1.4				1844	10.3			
Moderate	15747	281	1.6	1.13	0.95 - 1.34	0.159	1836	10.3	1.00	0.93 - 1.07	0.967
High	15482	376	2.1	1.53	1.31 - 1.81	<0.001	2035	11.4	1.13	1.06 - 1.21	<0.001
Non-White Concentration											
Low (ref)	15751	320	1.8				1829.0	10.2			
Moderate	15790	269	1.5	0.84	0.71 - 0.99	0.038	1844.0	10.3	1.01	0.94 - 1.08	0.873
High	15527	318	1.8	1.01	0.86 - 1.18	0.919	2042.0	11.4	1.13	1.06 - 1.21	<0.001
Ethnic diversity											
High (ref)	15540	318	1.8				2044	11.4			
Moderate	15789	269	1.5	0.83	0.71 - 0.98	0.030	1844	10.3	0.89	0.83 - 0.95	0.001
Low	15739	320	1.8	0.99	0.85 - 1.16	0.935	1827	10.2	0.88	0.82 - 0.95	<0.001

Source: ONS LS, created by the Author

Table 7-16 shows the results of the transitions from employment to unemployment among White women in multivariate multinomial logit models. After controlling for individual and household characteristics, deprivation remained significantly associated with the likelihood of becoming unemployed. Women in neighbourhoods characterised by low non-White concentration, low ethnic diversity and high co-ethnic concentration were all significantly more likely to become unemployed, even after controlling for individual and household characteristics and neighbourhood deprivation.

Table 7-17 shows the results of the transitions from employment to homemaking among White women in the same models. Women in moderately deprived neighbourhoods were significantly less likely to become homemakers. Similar associations were also found for women in the most deprived neighbourhoods, but these were not significant after controlling for individual and household characteristics. The ethnic composition of neighbourhoods did not significantly associate with the likelihood of employed White women becoming homemakers

Table 7.16: Multivariate predictors of transitions from employment to employment or unemployment among White women between 1991 and 2001

	Baseline			Baseline + non-White %			Baseline + Ethnic diversity		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)									
30 to 39	1.06	0.89	1.26	1.06	0.89	1.26	1.06	0.89	1.26
40 to 49	1.07	0.88	1.30	1.07	0.88	1.29	1.07	0.88	1.29
Couple status (ref: couple in 1991 and 2001)									
Single 1991 & 2001	**1.99**	**1.68**	**2.36**	**2.00**	**1.69**	**2.37**	**2.00**	**1.69**	**2.37**
Couple 1991, Single 2001	**2.03**	**1.66**	**2.49**	**2.03**	**1.66**	**2.49**	**2.03**	**1.66**	**2.49**
Single 1991, Couple 2001	1.08	0.84	1.38	1.08	0.84	1.38	1.08	0.84	1.38
Qualifications (ref: none)									
Qualifications	**0.45**	**0.35**	**0.58**	**0.46**	**0.35**	**0.59**	**0.46**	**0.35**	**0.59**
No qualifications in 1991, gained by 2001	**0.79**	**0.67**	**0.94**	**0.79**	**0.67**	**0.94**	**0.79**	**0.67**	**0.94**
Household tenure (ref: owner)									
Private renter	1.24	0.95	1.62	1.25	0.96	1.63	1.25	0.96	1.63
Social renter	**1.66**	**1.39**	**1.99**	**1.66**	**1.39**	**1.98**	**1.66**	**1.39**	**1.98**
Migrant generation (ref: UK born)									
Migrant	**1.37**	**1.01**	**1.85**	**1.38**	**1.02**	**1.87**	**1.38**	**1.02**	**1.87**
Internal migrant (ref: non-mover)									
Mover	**1.27**	**1.09**	**1.48**	**1.27**	**1.09**	**1.49**	**1.27**	**1.09**	**1.49**
Deprivation (ref: low)									
Moderate	1.04	0.88	1.24	1.07	0.89	1.27	1.07	0.89	1.27
High	**1.25**	**1.05**	**1.49**	**1.32**	**1.10**	**1.58**	**1.32**	**1.10**	**1.58**
Non-White Concentration (ref: low)									
Moderate				**0.81**	**0.69**	**0.97**			
High				**0.81**	**0.68**	**0.97**			
Ethnic diversity (ref: high)									
Moderate							1.00	0.84	1.20
Low							**1.23**	**1.03**	**1.48**

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Table 7.17: Multivariate predictors of transitions from employment to employment or homemaking among White women between 1991 and 2001

	Baseline			Baseline + non-White %			Baseline + Ethnic diversity		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)									
30 to 39	**0.40**	**0.36**	**0.43**	**0.40**	**0.36**	**0.43**	**0.40**	**0.36**	**0.43**
40 to 49	**0.47**	**0.44**	**0.51**	**0.47**	**0.44**	**0.51**	**0.47**	**0.44**	**0.51**
Couple status (ref: couple in 1991 and 2001)									
Single 1991 & 2001	**0.52**	**0.48**	**0.57**	**0.52**	**0.48**	**0.57**	**0.52**	**0.48**	**0.57**
Couple 1991, Single 2001	**0.59**	**0.52**	**0.66**	**0.59**	**0.52**	**0.66**	**0.59**	**0.52**	**0.66**
Single 1991, Couple 2001	**1.25**	**1.16**	**1.36**	**1.25**	**1.16**	**1.35**	**1.25**	**1.16**	**1.35**
Qualifications (ref: none)									
Qualifications	**0.34**	**0.31**	**0.38**	**0.34**	**0.31**	**0.38**	**0.34**	**0.31**	**0.38**
No qualifications in 1991, gained by 2001	**0.48**	**0.45**	**0.52**	**0.48**	**0.45**	**0.52**	**0.48**	**0.45**	**0.52**
Household tenure (ref: owner)									
Private renter	**1.22**	**1.10**	**1.37**	**1.22**	**1.09**	**1.37**	**1.22**	**1.09**	**1.37**
Social renter	**1.26**	**1.16**	**1.38**	**1.26**	**1.16**	**1.38**	**1.26**	**1.16**	**1.38**
Migrant generation (ref: UK born)									
Migrant	1.00	0.86	1.17	1.00	0.86	1.17	1.00	0.86	1.17
Internal migrant (ref: non-mover)									
Mover	**1.45**	**1.36**	**1.56**	**1.45**	**1.36**	**1.56**	**1.45**	**1.36**	**1.56**
Deprivation (ref: low)									
Moderate	**0.93**	**0.87**	**1.00**	**0.93**	**0.86**	**1.00**	**0.93**	**0.86**	**1.00**
High	0.99	0.92	1.06	0.98	0.91	1.06	0.98	0.91	1.05
Non-White Concentration (ref: low)									
Moderate				0.95	0.88	1.02			
High				1.01	0.93	1.09			
Ethnic diversity (ref: high)									
Moderate							0.95	0.88	1.02
Low							0.99	0.92	1.08

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

7.4.3.2 Indian women

Table 7-18 illustrates descriptive statistics and the results of univariate multinomial logit regression models for employed Indian women and their likelihood of becoming unemployed or homemakers by 2001. The likelihood of becoming unemployed was significantly higher among older Indian women only. All other independent variables, including the neighbourhood characteristics, were not significantly associated with this type of social mobility. Indian employed women were significantly less likely to become homemakers if they were aged between 30 and 39 in 1991, had qualifications, homeowners, or those who stayed in the same home instead of moving between 1991 and 2001. Neighbourhood deprivation and ethnic composition were not associated with this type of social mobility.

Table 7-19 and 7-20 shows the results of the multivariate multinomial logit regression models for Indian women. Table 7-19 shows that after controlling for individual and household characteristics, age and household tenure remained important predictors of becoming unemployed for employed Indian women in 1991. After controlling for ethnic diversity or the co-ethnic concentration measures, women in moderately deprived neighbourhoods were also significantly less likely to become unemployed compared to those in more affluent areas. Table 7-20 shows that individual and household factors remained significant in multivariate models. Deprivation was not significantly associated with becoming a homemaker, though Indian women in the non-White concentrated and ethnically diverse neighbourhoods were significantly more likely to become homemakers.

Table 7.18: Univariate predictors of transitions from employment to employment, unemployment or homemaking among Indian women between 1991 and 2001

	N Employed to Employed	N Employed to Unemployed	% Socially Mobile	Odds Ratio	95% CIs	p-value	N Employed to Homemaker	% Socially Mobile	Odds Ratio	95% CIs	p-value
Age											
18 to 29 (ref)	361	10	2.4				51	12.1			
30 to 39	510	19	3.3	1.33	0.59 - 2.99	0.494	40	7.0	0.55	0.35 - 0.85	0.007
40 to 49	262	19	6.2	2.58	1.12 - 5.97	0.026	24	7.9	0.64	0.38 - 1.09	0.098
Couple status											
Couple 1991 & 2001 (ref)	866	34	3.5				78	8.0			
Single 1991 & 2001	100	BLANKED	5.3	1.54	0.64 - 3.69	0.338	BLANKED	6.2	0.78	0.35 - 1.74	0.546
Couple 1991, Single 2001	72	BLANKED	7.2	2.14	0.88 - 5.20	0.093	BLANKED	6.0	0.78	0.31 - 1.98	0.598
Single 1991, Couple 2001	95	BLANKED	2.4	0.55	0.13 - 2.31	0.410	25	20.3	2.97	1.72 - 5.11	<0.001
Qualifications											
No qualifications (ref)	325	19	4.7				57	14.2			
Qualifications	179	BLANKED	2.1	0.38	0.13 - 1.14	0.083	BLANKED	4.7	0.29	0.14 - 0.60	0.001
No qualifications in 1991, gained by 2001	629	25	3.6	0.69	0.37 - 1.28	0.235	49	7.0	0.45	0.30 - 0.67	<0.001
Household tenure											
Owner (ref)	1,044	40	3.4				97	8.2			
Private renter	41	BLANKED	7.8	2.66	0.90 - 7.88	0.077	BLANKED	11.8	1.65	0.68 - 4.00	0.272
Social renter	47	BLANKED	6.3	2.21	0.77 - 6.33	0.140	12	19.0	2.73	1.44 - 5.20	0.002
Migrant generation											
UK born (ref)	141	BLANKED	3.6				20	12.0			
Migrant	992	42	3.7	1.00	0.43 - 2.32	0.992	95	8.4	0.68	0.39 - 1.16	0.157
Internal migrant											
Non-mover (ref)	671	29	3.9				49	6.5			
Mover	459	19	3.5	0.97	0.54 - 1.75	0.919	66	12.1	1.99	1.33 - 2.99	0.001
Standard region 1991											
South East (ref)	640	27	3.7				56	7.7			
North	11	BLANKED					BLANKED				
Yorkshire	44	BLANKED					BLANKED				
East Midlands	152	BLANKED	4.0	1.09	0.46 - 2.58	0.850	15	8.6	1.12	0.61 - 2.08	0.712

East Anglia	15	BLANKED					BLANKED				
South West	11	BLANKED					BLANKED				
West Midlands	216	11	4.3	1.19	0.60 - 2.38	0.614	27	10.6	1.41	0.87 - 2.30	0.164
North West	44	BLANKED	4.9	1.09	0.25 - 4.68	0.907	14	23.0	3.68	1.73 - 7.82	0.001
Deprivation											
Low (ref)	377	16	3.7				35	8.2			
Moderate	389	BLANKED	1.8	0.49	0.21 - 1.10	0.084	36	8.3	1.00	0.62 - 1.61	0.990
High	355	24	5.7	1.59	0.83 - 3.05	0.160	44	10.4	1.34	0.81 - 2.19	0.253
Non-White Concentration											
Low (ref)	385	14	3.3				29	6.8			
Moderate	372	18	4.2	1.33	0.64 - 2.76	0.443	41	9.5	1.46	0.89 - 2.40	0.131
High	364	16	3.8	1.21	0.60 - 2.44	0.597	45	10.6	1.64	0.99 - 2.71	0.053
Ethnic diversity											
High (ref)	366	18	4.2				44	10.3			
Moderate	370	16	3.7	0.88	0.44 - 1.77	0.717	42	9.8	0.94	0.59 - 1.51	0.811
Low	385	14	3.3	0.74	0.37 - 1.49	0.398	29	6.8	0.63	0.38 - 1.04	0.070
Co-Ethnic Concentration											
Low (ref)	383	12	2.8				34	7.9			
Moderate	378	17	4.0	1.44	0.67 - 3.08	0.353	35	8.1	1.04	0.63 - 1.72	0.868
High	360	19	4.5	1.69	0.82 - 3.47	0.158	46	10.8	1.44	0.89 - 2.32	0.136
Other-Ethnic Concentration											
Low (ref)	377	17	4.0				34	7.9			
Moderate	373	14	3.2	0.83	0.40 - 1.73	0.623	45	10.4	1.34	0.83 - 2.16	0.235
High	371	17	4.0	1.02	0.51 - 2.01	0.963	36	8.5	1.08	0.65 - 1.77	0.773

Source: ONS LS, created by the Author

Table 7.19: Multivariate predictors of transitions from employment to employment or unemployment among Indian women between 1991 and 2001

	Baseline			Baseline + non-White %			Baseline + Ethnic diversity			Baseline + co-ethnic %			Baseline + other-ethnic %		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	1.70	0.55	5.22	1.67	0.54	5.20	1.69	0.55	5.24	1.77	0.56	5.60	1.72	0.56	5.25
40 to 49	**3.42**	**1.05**	**11.10**	**3.42**	**1.06**	**11.06**	**3.43**	**1.06**	**11.13**	**3.56**	**1.07**	**11.82**	**3.51**	**1.09**	**11.28**
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	1.32	0.55	3.14	1.31	0.55	3.12	1.31	0.56	3.08	1.30	0.54	3.11	1.31	0.55	3.12
Couple 1991, Single 2001	1.87	0.71	4.96	1.88	0.71	4.99	1.88	0.70	5.02	1.83	0.68	4.92	1.88	0.71	4.99
Single 1991, Couple 2001	0.69	0.13	3.60	0.70	0.13	3.64	0.69	0.13	3.59	0.67	0.12	3.55	0.72	0.13	3.89
Qualifications (ref: none)															
Qualifications	0.50	0.15	1.63	0.50	0.15	1.63	0.51	0.15	1.67	0.55	0.16	1.85	0.49	0.15	1.62
No qualifications in 1991, gained by 2001	0.85	0.42	1.69	0.84	0.42	1.69	0.85	0.42	1.72	0.90	0.44	1.84	0.83	0.42	1.67
Household tenure (ref: owner)															
Private renter	**3.70**	**1.38**	**9.91**	**3.71**	**1.38**	**9.94**	**3.75**	**1.40**	**10.04**	**3.93**	**1.47**	**10.51**			
Social renter	1.87	0.64	5.47	1.76	0.60	5.11	1.87	0.63	5.59	2.12	0.72	6.28	1.90	0.65	5.58
Migrant generation (ref: UK born)															
Migrant	0.67	0.22	2.02	0.66	0.22	2.04	0.67	0.22	2.03	0.67	0.22	2.04	0.67	0.22	2.00
Internal migrant (ref: non-mover)															
Mover	1.05	0.56	1.98	1.04	0.54	1.99	1.06	0.56	2.00	1.12	0.59	2.13	1.03	0.55	1.94
Deprivation (ref: low)															
Moderate	0.45	0.19	1.03	0.45	0.20	1.02	**0.43**	**0.19**	**0.99**	**0.35**	**0.15**	**0.85**	0.54	0.22	1.29
High	1.46	0.75	2.84	1.55	0.69	3.48	1.40	0.60	3.27	1.12	0.53	2.38	1.92	0.78	4.71
Non-White Concentration (ref: low)															
Moderate				1.19	0.55	2.57									
High				0.89	0.36	2.18									
Ethnic diversity (ref: high)															
Moderate							1.05	0.48	2.28						
Low							0.93	0.35	2.46						
Co-Ethnic Concentration (ref: low)															
Moderate										1.52	0.71	3.25			
High										1.87	0.81	4.31			
Other Non-White Concentration (ref: low)															
Moderate													0.74	0.34	1.62
High													0.62	0.23	1.63

Source: ONS LS, created by the Author Significant odds ratios ($p<0.05$) are highlighted in bold

Table 7.20: Multivariate predictors of transitions from employment to employment or homemaking among Indian women between 1991 and 2001

	Baseline			Baseline + non-White %			Baseline + Ethnic diversity			Baseline + co-ethnic %			Baseline + other-ethnic %		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	0.63	0.37	1.05	0.63	0.38	1.06	0.63	0.38	1.05	0.63	0.38	1.06	0.62	0.37	1.04
40 to 49	0.75	0.41	1.35	0.76	0.42	1.38	0.76	0.42	1.38	0.76	0.42	1.37	0.74	0.41	1.34
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	0.71	0.30	1.67	0.70	0.30	1.64	0.70	0.30	1.66	0.71	0.30	1.68	0.69	0.29	1.64
Couple 1991, Single 2001	0.74	0.30	1.82	0.73	0.29	1.85	0.73	0.29	1.85	0.73	0.29	1.81	0.72	0.29	1.80
Single 1991, Couple 2001	**2.79**	**1.44**	**5.40**	**2.73**	**1.39**	**5.34**	**2.75**	**1.40**	**5.38**	**2.70**	**1.39**	**5.27**	**2.68**	**1.39**	**5.16**
Qualifications (ref: none)															
Qualifications	**0.18**	**0.08**	**0.41**	**0.19**	**0.09**	**0.43**	**0.19**	**0.09**	**0.43**	**0.19**	**0.08**	**0.41**	**0.19**	**0.08**	**0.41**
No qualifications in 1991, gained by 2001	**0.31**	**0.19**	**0.49**	**0.32**	**0.20**	**0.51**	**0.32**	**0.20**	**0.51**	**0.31**	**0.20**	**0.49**	**0.31**	**0.20**	**0.49**
Household tenure (ref: owner)															
Private renter	1.59	0.63	4.00	1.72	0.68	4.38	1.71	0.67	4.36	1.66	0.66	4.19	1.59	0.63	4.03
Social renter	**2.34**	**1.13**	**4.84**	**2.55**	**1.20**	**5.41**	**2.49**	**1.19**	**5.24**	**2.56**	**1.22**	**5.38**	**2.35**	**1.13**	**4.86**
Migrant generation (ref: UK born)															
Migrant	1.20	0.62	2.33	1.25	0.64	2.44	1.26	0.64	2.46	1.20	0.62	2.33	1.21	0.62	2.35
Internal migrant (ref: non-mover)															
Mover	**1.90**	**1.22**	**2.96**	**2.01**	**1.28**	**3.15**	**1.99**	**1.27**	**3.12**	**1.98**	**1.26**	**3.09**	**1.92**	**1.23**	**2.99**
Deprivation (ref: low)															
Moderate	0.86	0.53	1.41	0.60	0.33	1.07	0.61	0.35	1.09	0.73	0.43	1.25	0.81	0.48	1.39
High	0.89	0.52	1.53	0.52	0.26	1.06	0.54	0.27	1.08	0.71	0.37	1.37	0.85	0.45	1.59
Non-White Concentration (ref: low)															
Moderate				1.77	0.97	3.22									
High				**2.35**	**1.12**	**4.90**									
Ethnic diversity (ref: high)															
Moderate							0.81	0.48	1.39						
Low							**0.45**	**0.22**	**0.94**						
Co-Ethnic Concentration (ref: low)															
Moderate										0.98	0.55	1.73			
High										1.57	0.84	2.95			
Other Non-White Concentration (ref: low)															
Moderate													1.31	0.77	2.24
High													1.09	0.58	2.04

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

7.4.3.3 Black Caribbean women

Table 7-21 shows the descriptive statistics and results of univariate multinomial logit regression models among Black Caribbean women. For transitions from employment to unemployment, no independent variable produced a significant association. However, for transitions from employment to homemaking, more results were found. The likelihood of becoming a homemaker was significantly lower among older Black Caribbean women, higher among those who became single by 2001 compared to those in a couple in 1991 and 2001, and also higher among those who moved home between 1991 and 2001. No neighbourhood characteristic was significantly associated with this type of social mobility.

Table 7-22 and 7-23 shows the results of the multivariate multinomial logit regression models. Table 7-22 confirms the lack of significant associations between the likelihood of becoming unemployed and any of the independent variables. Table 7-23 shows that the likelihood of employed Black Caribbean women becoming homemakers was significantly higher for those who became single, and those with qualifications. Adding the other non-White ethnic concentration measure into the model produced a significant association, with Black Caribbean women in moderately concentrated neighbourhoods being significantly more likely to become homemakers. In this model, neighbourhood deprivation was also significant, with women in more affluent areas being more likely to become homemakers. In all other models, neighbourhood deprivation and ethnic composition were not significantly associated with this type of social mobility.

Table 7.21: Univariate predictors of transitions from employment to employment, unemployment or homemaking among Black Caribbean women between 1991 and 2001

	N Employed to Employed	N Employed to Unemployed	% Socially Mobile	Odds Ratio	95% CIs	p-value	N Employed to Homemaker	% Socially Mobile	Odds Ratio	95% CIs	p-value
Age											
18 to 29 (ref)	236	BLANKED	3.3				27	9.9			
30 to 39	173	BLANKED	3.2	0.91	0.32 - 2.57	0.854	11	5.8	0.55	0.26 - 1.18	0.127
40 to 49	123	BLANKED	5.9	1.69	0.64 - 4.50	0.293	5	3.7	0.35	0.14 - 0.90	0.030
Couple status											
Couple 1991 & 2001 (ref)	131	BLANKED	4.2				BLANKED	4.2			
Single 1991 & 2001	289	10	3.1	0.76	0.27 - 2.13	0.594	22	6.9	1.66	0.65 - 4.26	0.291
Couple 1991, Single 2001	45	BLANKED	7.0	1.93	0.52 - 7.20	0.330	BLANKED	14.0	3.85	1.38 - 10.78	0.010
Single 1991, Couple 2001	67	BLANKED	3.9	0.97	0.24 - 4.00	0.967	BLANKED	9.1	2.26	0.73 - 7.04	0.158
Qualifications											
No qualifications (ref)	52	BLANKED	6.3				BLANKED	11.1			
Qualifications	115	BLANKED	3.2	0.45	0.11 - 1.91	0.281	BLANKED	4.8	0.39	0.12 - 1.22	0.105
No qualifications in 1991, gained by 2001	363	15	3.7	0.54	0.17 - 1.71	0.297	29	7.1	0.60	0.25 - 1.42	0.243
Household tenure											
Owner (ref)	352	13	3.3				26	6.6			
Private renter	20	BLANKED	0.0	1.35	0.17 - 10.89	0.778	BLANKED	0.0	0.68	0.09 - 5.24	0.707
Social renter	159	BLANKED	4.9	1.55	0.65 - 3.67	0.321	14	7.7	1.20	0.62 - 2.34	0.584
Migrant generation											
UK born (ref)	280	12	3.8				26	8.2			
Migrant	252	11	3.9	1.02	0.44 - 2.34	0.972	17	6.1	0.72	0.39 - 1.36	0.314
Internal migrant											
Non-mover (ref)	265	12	4.2				12	4.2			
Mover	266	11	3.6	0.92	0.40 - 2.11	0.838	31	10.1	2.58	1.32 - 5.06	0.006
Standard region 1991											
South East (ref)	363	13	3.2				28	6.9			
North	BLANKED	BLANKED					BLANKED				
Yorkshire	33	BLANKED					BLANKED				

East Midlands	25	BLANKED	9.7	3.32	0.92 - 12.00	0.067	BLANKED	9.7	1.03	0.23 - 4.62	0.971
East Anglia	BLANKED	BLANKED					BLANKED				
South West	18	BLANKED					BLANKED				
West Midlands	71	BLANKED	6.0	1.95	0.72 - 5.29	0.189	BLANKED	9.5	1.45	0.65 - 3.24	0.366
North West	14	BLANKED					BLANKED	22.2	3.68	1.20 - 11.30	0.023
Deprivation											
Low (ref)	174	BLANKED	4.5				15	7.6			
Moderate	177	BLANKED	2.5	0.55	0.18 - 1.65	0.283	16	8.1	1.05	0.50 - 2.21	0.901
High	177	BLANKED	4.5	0.98	0.39 - 2.48	0.971	12	6.1	0.79	0.34 - 1.81	0.571
Non-White Concentration											
Low (ref)	177	BLANKED	4.0				13	6.6			
Moderate	175	BLANKED	3.5	0.89	0.32 - 2.47	0.815	18	9.0	1.40	0.65 - 3.02	0.390
High	176	BLANKED	4.1	1.01	0.38 - 2.70	0.991	12	6.1	0.93	0.42 - 2.05	0.854
Ethnic diversity											
High (ref)	179	BLANKED	4.0				12	6.0			
Moderate	172	BLANKED	3.6	0.91	0.33 - 2.51	0.856	18	9.1	1.56	0.73 - 3.36	0.254
Low	177	BLANKED	4.0	1.01	0.38 - 2.72	0.982	13	6.6	1.10	0.50 - 2.42	0.822
Co-Ethnic Concentration											
Low (ref)	173	10	5.1				15	7.6			
Moderate	180	BLANKED	2.5	0.48	0.16 - 1.43	0.189	15	7.5	0.96	0.45 - 2.05	0.918
High	175	BLANKED	4.1	0.79	0.31 - 2.00	0.620	13	6.6	0.86	0.39 - 1.87	0.698
Other-Ethnic Concentration											
Low (ref)	177	BLANKED	4.5				12	6.1			
Moderate	175	BLANKED	3.5	0.79	0.29 - 2.14	0.638	16	8.1	1.35	0.62 - 2.97	0.458
High	176	BLANKED	3.5	0.78	0.29 - 2.10	0.626	15	7.6	1.26	0.57 - 2.80	0.576

Source: ONS LS, created by the Author

Table 7.22: Multivariate predictors of transitions from employment to employment or unemployment among Black Caribbean women between 1991 and 2001

	Baseline			Baseline + non-White %			Baseline + Ethnic diversity			Baseline + co-ethnic %			Baseline + other-ethnic		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	1.23	0.26	5.76	1.22	0.25	6.05	1.21	0.25	6.00	1.33	0.27	6.40	1.26	0.26	6.07
40 to 49	2.46	0.36	16.62	2.50	0.34	18.09	2.48	0.34	17.96	2.58	0.35	19.11	2.51	0.35	18.00
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	0.69	0.24	2.01	0.69	0.24	1.97	0.70	0.24	1.98	0.65	0.22	1.92	0.68	0.24	1.98
Couple 1991, Single 2001	1.98	0.50	7.81	2.04	0.51	8.12	2.04	0.51	8.13	1.96	0.53	7.21	1.94	0.47	8.06
Single 1991, Couple 2001	0.96	0.23	4.02	0.98	0.23	4.16	0.99	0.23	4.18	0.89	0.21	3.80	0.96	0.22	4.10
Qualifications (ref: none)															
Qualifications	0.43	0.10	1.90	0.42	0.09	1.88	0.42	0.09	1.89	0.41	0.09	1.87	0.43	0.09	1.91
No qualifications in 1991, gained by 2001	0.50	0.14	1.81	0.49	0.14	1.73	0.50	0.14	1.73	0.54	0.15	1.96	0.51	0.14	1.85
Household tenure (ref: owner)															
Private renter															
Social renter	1.29	0.19	8.57	1.27	0.20	8.20	1.27	0.20	8.19	1.32	0.18	9.59	1.30	0.19	8.82
Migrant generation (ref: UK born)	1.76	0.65	4.73	1.79	0.65	4.89	1.78	0.65	4.88	1.90	0.71	5.09	1.76	0.64	4.85
Migrant															
Internal migrant (ref: non-mover)	0.50	0.11	2.40	0.50	0.10	2.44	0.50	0.10	2.44	0.45	0.09	2.43	0.50	0.10	2.41
Mover															
Deprivation (ref: low)															
Moderate	1.12	0.49	2.57	1.12	0.49	2.56	1.12	0.49	2.57	1.04	0.44	2.45	1.12	0.49	2.60
High	0.50	0.18	1.42	0.46	0.15	1.42	0.46	0.15	1.42	0.60	0.18	2.01	0.53	0.18	1.57
Non-White Concentration (ref: low)	0.73	0.22	2.44	0.60	0.15	2.50	0.61	0.15	2.51	0.79	0.14	4.52	0.81	0.22	2.99
Moderate															
High				1.22	0.41	3.59									
Ethnic diversity (ref: high)				1.39	0.39	4.98									
Moderate							0.89	0.28	2.84						
Low							0.73	0.20	2.62						
Co-Ethnic Concentration (ref: low)															
Moderate										0.49	0.13	1.89			
High										0.88	0.16	4.91			
Other Non-White Concentration (ref: low)															
Moderate													0.86	0.29	2.51
High													0.87	0.26	2.96

Source: ONS LS, created by the Author Significant odds ratios ($p<0.05$) are highlighted in bold

Table 7.23: Multivariate predictors of transitions from employment to employment or homemaking among Black Caribbean women between 1991 and 2001

	Baseline			Baseline + non-White %			Baseline + Ethnic diversity			Baseline + co-ethnic %			Baseline + other-ethnic %		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	0.53	0.17	1.67	0.43	0.13	1.40	0.44	0.14	1.40	0.52	0.17	1.64	0.42	0.13	1.43
40 to 49	0.25	0.05	1.29	0.22	0.04	1.17	0.22	0.04	1.15	0.25	0.05	1.32	0.21	0.04	1.14
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	1.28	0.39	4.16	1.32	0.41	4.30	1.32	0.40	4.29	1.28	0.39	4.16	1.30	0.40	4.21
Couple 1991, Single 2001	**4.74**	**1.54**	**14.58**	**5.07**	**1.63**	**15.83**	**5.01**	**1.61**	**15.58**	**4.74**	**1.53**	**14.68**	**5.34**	**1.72**	**16.55**
Single 1991, Couple 2001	1.33	0.33	5.39	1.40	0.35	5.66	1.39	0.34	5.65	1.32	0.32	5.51	1.38	0.35	5.44
Qualifications (ref: none)															
Qualifications	**0.23**	**0.06**	**0.94**	**0.22**	**0.05**	**0.94**	**0.22**	**0.05**	**0.91**	**0.23**	**0.06**	**0.93**	**0.23**	**0.05**	**0.97**
No qualifications in 1991, gained by 2001	**0.28**	**0.09**	**0.82**	**0.27**	**0.09**	**0.79**	**0.26**	**0.09**	**0.77**	**0.28**	**0.09**	**0.81**	**0.26**	**0.09**	**0.80**
Household tenure (ref: owner)															
Private renter	0.60	0.08	4.26	0.55	0.08	3.87	0.55	0.08	3.90	0.60	0.08	4.30	0.61	0.09	4.10
Social renter	1.06	0.47	2.42	1.06	0.45	2.48	1.05	0.45	2.45	1.06	0.46	2.40	1.08	0.47	2.48
Migrant generation (ref: UK born)															
Migrant	1.15	0.39	3.40	1.32	0.42	4.14	1.33	0.43	4.14	1.15	0.39	3.42	1.31	0.40	4.25
Internal migrant (ref: non-mover)															
Mover	2.12	0.97	4.67	2.14	0.96	4.73	2.18	0.98	4.85	2.13	0.98	4.66	2.01	0.90	4.50
Deprivation (ref: low)															
Moderate	0.96	0.44	2.10	0.72	0.33	1.60	0.73	0.33	1.61	0.96	0.42	2.18	0.67	0.30	1.51
High	0.51	0.20	1.30	0.38	0.14	1.07	0.39	0.14	1.08	0.52	0.18	1.52	**0.29**	**0.10**	**0.82**
Non-White Concentration (ref: low)															
Moderate				2.39	0.97	5.90									
High				1.51	0.52	4.41									
Ethnic diversity (ref: high)															
Moderate							1.68	0.73	3.83						
Low							0.69	0.24	2.01						
Co-Ethnic Concentration (ref: low)															
Moderate										1.02	0.41	2.53			
High										0.98	0.37	2.64			
Other Non-White Concentration (ref: low)															
Moderate													**2.59**	**1.01**	**6.66**
High													2.39	0.81	7.04

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Summary of Study 3

This study has investigated whether neighbourhood characteristics affect changes in economic status for employed women in different ethnic groups. For example, among White women, deprivation and co-ethnic concentration were significantly associated with becoming unemployed. Meanwhile, White women in moderately deprived neighbourhoods were significantly less likely to become homemakers compared to those in affluent areas.

Among Indian women, deprivation only became significantly associated with a lower likelihood of becoming unemployed after controlling for measures ethnic diversity or co-ethnic concentration. I suggest this should be interpreted with some caution, because if the relationship with deprivation were real, it should have also been observed in univariate models too (but it was not). A similarly debateable association was found for the likelihood of becoming a homemaker among Black Caribbean women in moderately deprived neighbourhoods, but only after controlling for the measure of other non-White neighbourhood concentration.

Deprivation was not associated with becoming a homemaker among Indian women, or becoming unemployed for Black Caribbean women. Indian women in non-White concentrated and ethnically diverse neighbourhoods were significantly more likely to become homemakers. Black Caribbean women in *other non-White* concentrated neighbourhoods were also significantly more likely to become homemakers. The ethnic composition of neighbourhoods was not associated with either transition for White women.

7.4.4 Study 4: Homemaker to employment or unemployment among women

7.4.4.1 White women

In this study I investigated transitions from homemaking into employment or unemployment among women in different ethnic groups. Table 7-25 shows the descriptive statistics and results of the univariate multinomial logit regression models for White women. The likelihood of becoming employed was significantly higher for women aged 30 to 39 compared to those aged 18 to 29, but also significantly lower for White women over 40 years old. White women were significantly less likely to become employed if they were single in 1991 and 2001, but those who were in a couple in 1991 and then became single by 2001 were significantly more likely to become employed. White women with qualifications were significantly more likely to become employed, as were those who moved home between 1991 and 2001. However, those living in social renting households were significantly less likely to become employed compared to homeowners. White women living in more deprived, more non-White concentrated, more ethnically diverse and low co-ethnically concentrated neighbourhoods were significantly less likely to become employed.

The likelihood of becoming unemployed was significantly lower for older White women, those with educational qualifications and homeowners. Those who moved home between 1991 and 2001 were significantly more likely to become unemployed. White women living in more deprived, ethnically diverse and less co-ethnically concentrated neighbourhoods were significantly more likely to become unemployed.

Table 7.24: Univariate predictors of transitions from homemaking to homemaking, employment or unemployment among White women between 1991 and 2001

	N Homemaker to Homemaker	N Homemaker to Employed	% Socially Mobile	Odds Ratio	95% CIs	p-value	N Homemaker to Unemployed	% Socially Mobile	Odds Ratio	95% CIs	p-value
Age											
18 to 29 (ref)	2,165	3,825	60.2				364	5.7			
30 to 39	1,933	4,663	68.1	1.36	1.26 - 1.47	<0.001	249	3.6	0.77	0.65 - 0.92	0.003
40 to 54	2,068	1,810	45.5	0.49	0.45 - 0.54	<0.001	98	2.5	0.29	0.22 - 0.36	<0.001
Couple status											
Couple 1991 & 2001 (ref)	3,929	6,451	60.8				238	2.2			
Single 1991 & 2001	1,095	1,567	53.9	0.87	0.80 - 0.95	0.002	243	8.4	3.61	3.00 - 4.36	<0.001
Couple 1991, Single 2001	746	1,588	63.4	1.31	1.19 - 1.44	<0.001	171	6.8	3.84	3.11 - 4.74	<0.001
Single 1991, Couple 2001	396	692	60.3	1.08	0.95 - 1.23	0.263	59	5.1	2.50	1.85 - 3.38	<0.001
Qualifications											
No qualifications (ref)	2,891	2,730	46.5				251	4.3			
Qualifications	341	910	71.1	2.82	2.46 - 3.24	<0.001	29	2.3	0.98	0.66 - 1.46	0.913
No qualifications in 1991, gained by 2001	2,932	6,655	66.4	2.40	2.24 - 2.57	<0.001	431	4.3	1.68	1.43 - 1.98	<0.001
Household tenure											
Owner (ref)	3,665	7,126	64.3				283	2.6			
Private renter	283	465	58.1	0.84	0.72 - 0.98	0.290	52	6.5	2.40	1.74 - 3.32	<0.001
Social renter	2,200	2,682	51.0	0.63	0.58 - 0.67	<0.001	372	7.1	2.20	1.87 - 2.59	<0.001
Migrant generation											
UK born (ref)	5,873	9,860	60.1				680	4.1			
Migrant	293	438	57.5	0.89	0.76 - 1.03	0.125	31	4.1	0.89	0.60 - 1.30	0.535
Internal migrant											
Non-mover (ref)	3,128	4,941	59.3				267	3.2			
Mover	3,037	5,356	60.6	1.12	1.05 - 1.19	0.001	444	5.0	1.71	1.45 - 2.01	<0.001
Standard region 1991											
South East (ref)	2,230	3,771	60.5				232	3.7			
North	507	663	53.7	0.77	0.68 - 0.88	<0.001	65	5.3	1.25	0.93 - 1.67	0.150
Yorkshire	684	1,101	58.3	0.95	0.85 - 1.06	0.371	104	5.5	1.44	1.12 - 1.86	0.040

East Midlands	531	930	60.9	1.04	0.92 - 1.18	0.493	66	4.3	1.19	0.88 - 1.61	0.252
East Anglia	269	459	61.2	1.01	0.86 - 1.18	0.928	22	2.9	0.79	0.49 - 1.27	0.328
South West	521	1,037	64.4	1.18	1.04 - 1.34	0.009	51	3.2	0.95	0.69 - 1.32	0.769
West Midlands	681	1,080	58.7	0.94	0.83 - 1.05	0.275	79	4.3	1.11	0.84 - 1.45	0.469
North West	743	1,257	60.1	1.00	0.90 - 1.12	0.948	92	4.4	1.20	0.92 - 1.56	0.185
Deprivation											
Low (ref)	1905	2622	56.1				147	3.1			
Moderate	1921	2550	54.4	0.97	0.89 - 1.05	0.443	219	4.7	1.48	1.19 - 1.84	<0.001
High	2297	2044	43.7	0.70	0.64 - 0.75	<0.001	338	7.2	1.91	1.56 - 2.34	<0.001
Non-White Concentration											
Low (ref)	2019	3467	60.9				210	3.7			
Moderate	1956	3498	61.6	1.04	0.96 - 1.13	0.320	223	3.9	1.10	0.90 - 1.34	0.365
High	2148	3262	57.4	0.88	0.82 - 0.96	0.003	271	4.8	1.21	1.00 - 1.47	0.051
Ethnic diversity											
High (ref)	2150	3263	57.4				272	4.8			
Moderate	1960	3502	61.6	1.18	1.09 - 1.28	<0.001	223	3.9	0.90	0.74 - 1.09	0.283
Low	2013	3462	60.9	1.13	1.05 - 1.23	0.002	209	3.7	0.82	0.68 - 1.00	0.046

Source: ONS LS, created by the Author

Table 7.25: Multivariate predictors of transitions from homemaking to homemaking or employment among White women between 1991 and 2001

	Baseline			Baseline + non-White %			Baseline + Ethnic diversity		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)									
30 to 39	**1.32**	**1.21**	**1.43**	**1.32**	**1.22**	**1.43**	**1.32**	**1.22**	**1.43**
40 to 54	**0.51**	**0.46**	**0.56**	**0.51**	**0.46**	**0.56**	**0.51**	**0.46**	**0.56**
Couple status (ref: couple in 1991 and 2001)									
Single 1991 & 2001	**1.12**	**1.01**	**1.24**	**1.13**	**1.02**	**1.25**	**1.13**	**1.02**	**1.25**
Couple 1991, Single 2001	**1.37**	**1.24**	**1.52**	**1.37**	**1.24**	**1.52**	**1.37**	**1.24**	**1.52**
Single 1991, Couple 2001	**1.23**	**1.07**	**1.41**	**1.23**	**1.07**	**1.41**	**1.23**	**1.07**	**1.41**
Qualifications (ref: none)									
Qualifications	**2.25**	**1.95**	**2.60**	**2.27**	**1.96**	**2.62**	**2.27**	**1.96**	**2.62**
No qualifications in 1991, gained by 2001	**2.00**	**1.86**	**2.16**	**2.00**	**1.86**	**2.16**	**2.00**	**1.86**	**2.16**
Household tenure (ref: owner)									
Private renter	**0.79**	**0.67**	**0.94**	**0.79**	**0.67**	**0.94**	**0.79**	**0.67**	**0.94**
Social renter	**0.68**	**0.62**	**0.74**	**0.68**	**0.62**	**0.74**	**0.68**	**0.62**	**0.74**
Migrant generation (ref: UK born)									
Migrant	0.91	0.77	1.07	0.92	0.78	1.08	0.92	0.78	1.08
Internal migrant (ref: non-mover)									
Mover	0.96	0.90	1.03	0.96	0.90	1.04	0.96	0.90	1.04
Deprivation (ref: low)									
Moderate	1.04	0.96	1.14	1.06	0.97	1.15	1.06	0.97	1.15
High	**0.86**	**0.79**	**0.94**	**0.89**	**0.81**	**0.98**	**0.89**	**0.81**	**0.98**
Non-White Concentration (ref: low)									
Moderate				1.01	0.92	1.09			
High				**0.91**	**0.82**	**1.00**			
Ethnic diversity (ref: high)									
Moderate							**1.11**	**1.02**	**1.21**
Low							**1.11**	**1.01**	**1.22**

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Table 7.26: Multivariate predictors of transitions from homemaking to homemaking or unemployment among White women between 1991 and 2001

	Baseline			Baseline + non-White %			Baseline + Ethnic diversity		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)									
30 to 39	1.15	0.96	1.39	1.15	0.95	1.39	1.15	0.95	1.39
40 to 54	**0.55**	**0.42**	**0.72**	**0.55**	**0.42**	**0.72**	**0.55**	**0.42**	**0.72**
Couple status (ref: couple in 1991 and 2001)									
Single 1991 & 2001	**2.64**	**2.12**	**3.29**	**2.63**	**2.11**	**3.28**	**2.63**	**2.11**	**3.28**
Couple 1991, Single 2001	**3.16**	**2.54**	**3.93**	**3.16**	**2.54**	**3.93**	**3.16**	**2.54**	**3.93**
Single 1991, Couple 2001	**1.73**	**1.26**	**2.38**	**1.73**	**1.26**	**2.38**	**1.73**	**1.26**	**2.38**
Qualifications (ref: none)									
Qualifications	**1.72**	**1.13**	**2.60**	**1.71**	**1.13**	**2.59**	**1.71**	**1.13**	**2.59**
No qualifications in 1991, gained by 2001	**1.80**	**1.50**	**2.15**	**1.80**	**1.50**	**2.15**	**1.80**	**1.50**	**2.15**
Household tenure (ref: owner)									
Private renter	**1.57**	**1.12**	**2.21**	**1.58**	**1.12**	**2.22**	**1.58**	**1.12**	**2.22**
Social renter	**1.46**	**1.18**	**1.79**	**1.46**	**1.18**	**1.80**	**1.46**	**1.18**	**1.80**
Migrant generation (ref: UK born)									
Migrant	1.05	0.71	1.56	1.05	0.71	1.56	1.05	0.71	1.56
Internal migrant (ref: non-mover)									
Mover	1.14	0.96	1.35	1.13	0.95	1.35	1.13	0.95	1.35
Deprivation (ref: low)									
Moderate	1.16	0.93	1.46	1.15	0.92	1.45	1.15	0.92	1.45
High	1.18	0.93	1.49	1.16	0.91	1.48	1.16	0.91	1.47
Non-White Concentration (ref: low)									
Moderate				1.11	0.91	1.37			
High				1.09	0.87	1.36			
Ethnic diversity (ref: high)									
Moderate							1.01	0.82	1.25
Low							0.91	0.73	1.14

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Table 7-25 and 7-26 show the results for the multivariate multinomial logit regression models for homemaking White women and the likelihood of becoming employed or unemployed. Table 7-25 reports the results for homemaking to employment. After controlling for individual and household characteristics, White women living in more deprived neighbourhoods were significantly less likely to become employed. Those living in non-White concentrated, ethnically diverse, and low co-ethnically concentrated neighbourhoods were significantly less likely to become employed.

7.4.4.2 Indian women

Table 7-27 shows the descriptive statistics and univariate multinomial logit regression models. Older Indian women, with no qualifications, and who rented social housing were significantly less likely to become employed. Those who lived in more deprived neighbourhoods were less likely to become employed. Indian women living in less ethnically diverse neighbourhoods were more likely to become employed. However, those living in a neighbourhood with a moderate co-ethnic concentration and high other non-White ethnic concentration were significantly less likely to become employed. Single Indian women were significantly more likely to become unemployed, as were those with educational qualifications. No neighbourhood characteristics were significantly associated with moves from homemaking to unemployment for Indian women. Tables 7-28 and 7-29 show the results of multivariate multinomial logit regression models. After controlling for individual and household characteristics, almost no neighbourhood measures were associated with either type of social mobility. Only Indian women living in neighbourhoods with more other non-White ethnic concentration were significantly less likely to become unemployed.

Table 7.27: Univariate predictors of transitions from homemaking to homemaking, employment or unemployment among Indian women between 1991 and 2001

	N Homemaker to Homemaker	N Homemaker to Employed	% Socially Mobile	Odds Ratio	95% CIs	p-value	N Homemaker to Unemployed	% Socially Mobile	Odds Ratio	95% CIs	p-value
Age											
18 to 29 (ref)	53	92	59.7				BLANKED	5.8			
30 to 39	80	143	60.1	1.05	0.68 - 1.62	0.817	15	6.3	1.10	0.44 - 2.80	0.834
40 to 54	62	42	40.4	0.40	0.23 - 0.69	0.001	BLANKED	0.0	0.10	0.01 - 0.79	0.030
Couple status											
Couple 1991 & 2001 (ref)	173	246	56.4				17	3.9			
Single 1991 & 2001	BLANKED	BLANKED	44.4	1.13	0.36 - 3.56	0.831	BLANKED	27.8	10.12	2.82 - 36.30	<0.001
Couple 1991, Single 2001	15	16	47.1	0.80	0.37 - 1.55	0.442	BLANKED	8.8	2.02	0.54 - 7.58	0.296
Single 1991, Couple 2001	BLANKED	BLANKED	70.0	2.48	0.51 - 12.08	0.262	BLANKED	0.0	0.00	0.00 - 0.00	<0.001
Qualifications											
No qualifications (ref)	134	123	45.4				14	5.2			
Qualifications	BLANKED	15	71.4	8.31	1.84 - 37.49	0.006	BLANKED	14.3	9.57	1.24 - 73.68	0.030
No qualifications in 1991, gained by 2001	59	139	67.1	2.64	1.76 - 3.94	<0.001	BLANKED	4.3	1.49	0.62 - 3.57	0.377
Household tenure											
Owner (ref)	161	247	57.6				21	4.9			
Private renter	BLANKED	BLANKED	46.7	0.92	0.29 - 2.95	0.886	BLANKED	20.0	3.05	0.54 - 17.18	0.207
Social renter	29	23	41.8	0.52	0.29 - 0.93	0.028	BLANKED	5.5	0.53	0.12 - 2.40	0.407
Migrant generation											
UK born (ref)	16	21	52.5				BLANKED	7.5			
Migrant	179	256	55.9	1.08	0.54 - 2.16	0.821	23	5.0	1.03	0.22 - 4.87	0.967
Internal migrant											
Non-mover (ref)	136	168	52.5				16	5.0			
Mover	59	109	61.6	1.47	0.99 - 2.18	0.057	BLANKED	5.1	1.29	0.52 - 3.18	0.584
Standard region 1991											
South East (ref)	91	144	59.3				BLANKED	3.3			
North	BLANKED	BLANKED					BLANKED				
Yorkshire	13	12	48.0	0.60	0.21 - 1.70	0.333	BLANKED	0.0			

East Midlands	17	41	67.2	1.65	0.88 - 2.12	0.121	BLANKED	4.9	1.42	0.31 - 6.47	0.649
East Anglia	BLANKED	BLANKED	100.0				BLANKED				
South West	BLANKED	BLANKED	42.9	0.32	0.05 - 2.06	0.232	BLANKED				
West Midlands	40	58	51.8	0.93	0.57 - 1.53	0.791	14	12.5	3.98	1.51 - 10.51	0.005
North West	29	16	35.6	0.36	0.18 - 0.70	0.002	BLANKED				
Deprivation											
Low (ref)	54	103	62.8				BLANKED	4.3			
Moderate	65	92	56.1	0.74	0.46 - 1.21	0.228	BLANKED	4.3	0.83	0.25 - 2.75	0.761
High	75	78	47.6	0.55	0.34 - 0.89	0.014	11	6.7	1.13	0.40 - 3.19	0.816
Non-White Concentration											
Low (ref)	53	101	61.6				10	6.1			
Moderate	73	86	52.1	0.62	0.38 - 1.01	0.055	BLANKED	3.6	0.44	0.14 - 1.34	0.146
High	68	86	52.8	0.66	0.41 - 1.08	0.097	BLANKED	5.5	0.70	0.25 - 1.99	0.505
Ethnic diversity											
High (ref)	73	83	50.3				BLANKED	5.5			
Moderate	68	89	54.6	1.15	0.71 - 1.87	0.570	BLANKED	3.7	0.72	0.24 - 2.18	0.555
Low	53	101	61.6	1.68	1.03 - 2.73	0.038	10	6.1	1.53	0.54 - 4.36	0.426
Co-Ethnic Concentration											
Low (ref)	55	101	61.6				BLANKED	4.9			
Moderate	74	81	49.4	0.60	0.38 - 0.95	0.028	BLANKED	5.5	0.84	0.29 - 2.42	0.742
High	65	91	55.5	0.76	0.46 - 1.26	0.292	BLANKED	4.9	0.85	0.28 - 2.53	0.765
Other-Ethnic Concentration											
Low (ref)	49	104	63.4				11	6.7			
Moderate	70	88	53.7	0.59	0.36 - 0.99	0.044	BLANKED	3.7	0.38	0.13 - 1.14	0.084
High	75	81	49.4	0.51	0.32 - 0.81	0.005	BLANKED	4.9	0.48	0.17 - 1.36	0.166

Source: ONS LS, created by the Author

Table 7.28: Multivariate predictors of transitions from homemaking to homemaking or employment among Indian women between 1991 and 2001

	Baseline			Baseline + non-White %			Baseline + Ethnic diversity			Baseline + co-ethnic %			Baseline + other-ethnic %		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	1.14	0.69	1.86	1.14	0.70	1.87	1.14	0.70	1.87	1.15	0.70	1.89	1.14	0.70	1.88
40 to 54	**0.45**	**0.24**	**0.84**	**0.45**	**0.24**	**0.84**	**0.45**	**0.24**	**0.84**	**0.45**	**0.24**	**0.84**	**0.44**	**0.24**	**0.83**
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	1.35	0.38	4.86	1.34	0.36	4.95	1.34	0.36	4.95	1.32	0.37	4.70	1.29	0.35	4.72
Couple 1991, Single 2001	0.71	0.32	1.58	0.70	0.31	1.56	0.69	0.31	1.55	0.70	0.31	1.55	0.69	0.31	1.54
Single 1991, Couple 2001	3.32	0.57	19.37	3.18	0.55	18.20	3.07	0.53	17.71	2.96	0.49	17.80	3.03	0.55	16.71
Qualifications (ref: none)															
Qualifications	**9.25**	**1.54**	**55.71**	**8.66**	**1.48**	**50.88**	**8.59**	**1.47**	**50.32**	**9.02**	**1.47**	**55.55**	**8.73**	**1.47**	**51.71**
No qualifications in 1991, gained by 2001	**2.51**	**1.59**	**3.98**	**2.50**	**1.58**	**3.97**	**2.50**	**1.58**	**3.95**	**2.47**	**1.55**	**3.95**	**2.52**	**1.59**	**4.00**
Household tenure (ref: owner)															
Private renter	0.69	0.12	3.95	0.72	0.13	4.05	0.71	0.12	4.07	0.64	0.12	3.57	0.70	0.12	4.23
Social renter	**0.48**	**0.25**	**0.91**	**0.48**	**0.25**	**0.92**	**0.48**	**0.25**	**0.91**	**0.45**	**0.23**	**0.87**	**0.50**	**0.27**	**0.95**
Migrant generation (ref: UK born)															
Migrant	1.87	0.85	4.07	1.88	0.87	4.09	1.88	0.86	4.09	1.83	0.84	3.99	1.88	0.86	4.14
Internal migrant (ref: non-mover)															
Mover	1.29	0.82	2.03	1.26	0.79	1.99	1.26	0.79	2.00	1.24	0.78	1.99	1.25	0.79	1.99
Deprivation (ref: low)															
Moderate	0.96	0.56	1.65	1.08	0.57	2.05	1.10	0.58	2.08	0.93	0.53	1.62	1.22	0.64	2.33
High	0.84	0.47	1.49	0.99	0.47	2.09	1.02	0.50	2.09	0.81	0.44	1.48	1.23	0.57	2.66
Non-White Concentration (ref: low)															
Moderate				0.80	0.44	1.45									
High				0.79	0.38	1.61									
Ethnic diversity (ref: high)															
Moderate							1.10	0.66	1.85						
Low							1.34	0.66	2.74						
Co-Ethnic Concentration (ref: low)															
Moderate										0.64	0.38	1.10			
High										1.01	0.56	1.84			
Other Non-White Concentration (ref: low)															
Moderate													0.66	0.36	1.21
High													0.55	0.26	1.17

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Table 7.29: Multivariate predictors of transitions from homemaking to homemaking or unemployment among Indian women between 1991 and 2001

	Baseline			Baseline + non-White %			Baseline + Ethnic diversity			Baseline + co-ethnic %			Baseline + other-ethnic %		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	1.15	0.40	3.28	1.20	0.42	3.39	1.20	0.42	3.39	1.17	0.41	3.33	1.24	0.45	3.41
40 to 54	**0.05**	**0.01**	**0.34**	**0.06**	**0.01**	**0.36**	**0.06**	**0.01**	**0.36**	**0.05**	**0.01**	**0.34**	**0.06**	**0.01**	**0.35**
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	**23.82**	**4.68**	**121.12**	**22.87**	**4.29**	**121.98**	**22.50**	**4.25**	**119.05**	**24.26**	**4.95**	**118.90**	**22.45**	**4.05**	**124.26**
Couple 1991, Single 2001	2.06	0.49	8.58	1.97	0.49	7.99	1.98	0.49	7.93	2.03	0.49	8.46	2.05	0.50	8.37
Single 1991, Couple 2001	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Qualifications (ref: none)															
Qualifications	5.28	0.42	65.93	4.72	0.39	57.14	4.79	0.41	56.20	4.32	0.34	55.72	5.35	0.45	63.61
No qualifications in 1991, gained by 2001	1.15	0.43	3.10	1.13	0.42	3.03	1.13	0.42	3.04	1.06	0.39	2.85	1.13	0.41	3.13
Household tenure (ref: owner)															
Private renter	2.41	0.24	23.92	2.41	0.23	24.84	2.35	0.22	24.98	2.27	0.24	21.06	2.13	0.19	24.15
Social renter	0.29	0.07	1.27	0.28	0.06	1.26	0.28	0.06	1.29	0.24	0.05	1.30	0.26	0.05	1.35
Migrant generation (ref: UK born)															
Migrant	1.74	0.40	7.66	1.77	0.39	8.14	1.74	0.39	7.81	1.73	0.40	7.50	1.70	0.34	8.43
Internal migrant (ref: non-mover)															
Mover	1.03	0.36	2.97	0.96	0.31	2.95	0.95	0.31	2.94	0.95	0.32	2.80	0.94	0.30	2.97
Deprivation (ref: low)															
Moderate	0.98	0.29	3.26	1.36	0.32	5.71	1.35	0.32	5.74	1.08	0.31	3.75	1.59	0.41	6.19
High	1.26	0.40	3.94	2.40	0.41	14.17	2.36	0.39	14.27	1.55	0.45	5.39	4.03	0.81	20.19
Non-White Concentration (ref: low)															
Moderate				0.51	0.10	2.68									
High				0.41	0.08	2.07									
Ethnic diversity (ref: high)															
Moderate							1.23	0.38	3.95						
Low							2.41	0.46	12.73						
Co-Ethnic Concentration (ref: low)															
Moderate										0.52	0.14	1.91			
High										0.55	0.15	2.01			
Other Non-White Concentration (ref: low)															
Moderate													0.38	0.08	1.70
High													**0.19**	**0.04**	**0.88**

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

7.4.4.3 Black Caribbean women

Table 7-30 illustrates the descriptive statistics and univariate binary logit regression model results for Black Caribbean women (these models did not consider transitions from homemaking to unemployment due to very small numbers). Black Caribbean women who gained qualifications were 2.5 times more likely to become employed compared to those who had no qualifications. No other individual or household characteristic was significantly associated with becoming employed. Similarly, almost every neighbourhood characteristic was statistically insignificant. However, Black Caribbean women living in more co-ethnically concentrated neighbourhoods were significantly less likely to become employed.

Table 7-31 shows the results of the multivariate binary logit models. After controlling for individual and household characteristics, the association between co-ethnic concentration and the likelihood of moving from homemaking to employment was no longer significant. There was a significant negative association between this type of social mobility and ethnic diversity, but this was not found in the univariate results.

Table 7.30: Univariate predictors of transitions from homemaking to homemaking or employment among Black Caribbean women between 1991 and 2001

	N Homemaker to Homemaker	N Homemaker to Employed	% Socially Mobile	Odds Ratio	95% CIs	p-value
Age						
18 to 29 (ref)	24	34	58.6			
30 to 39	20	30	60.0	1.09	0.50 - 2.39	0.828
40 to 54	10	16	61.5	1.16	0.48 - 2.80	0.735
Couple status						
Couple 1991 & 2001 (ref)	14	19	57.6			
Single 1991 & 2001	33	39	54.2	0.85	0.38 - 1.90	0.689
Couple 1991, Single 2001	BLANKED	BLANKED	69.2	1.66	0.42 - 6.57	0.472
Single 1991, Couple 2001	BLANKED	13	81.3	3.19	0.76 - 13.46	0.114
Qualifications						
No qualifications (ref)	24	18	42.9			
Qualifications	BLANKED	BLANKED	100.0			

No qualifications in 1991, gained by 2001	30	57	65.5	2.49	1.17 - 5.31	0.018
Household tenure						
Owner (ref)	15	20	57.1			
Private renter	BLANKED	BLANKED	100.0			
Social renter	38	56	59.6	1.09	0.49 - 2.41	0.840
Migrant generation						
UK born (ref)	31	41	56.9			
Migrant	23	39	62.9	1.31	0.65 - 2.66	0.447
Internal migrant						
Non-mover (ref)	24	39	61.9			
Mover	30	41	57.7	0.82	0.40 - 1.70	0.593
Standard region 1991						
South East (ref)	43	56	56.6			
North	BLANKED	BLANKED				
Yorkshire	BLANKED	BLANKED	100.0			
East Midlands	BLANKED	BLANKED	100.0			
East Anglia	BLANKED	BLANKED	100.0			
South West	BLANKED	BLANKED				
West Midlands	BLANKED	11	64.7	1.43	0.48 - 4.32	0.522
North West	BLANKED	BLANKED	100.0			
Deprivation						
Low (ref)	17	28	62.2			
Moderate	18	26	59.1	0.88	0.37 - 2.06	0.763
High	19	26	57.8	0.80	0.35 - 1.85	0.600
Non-White Concentration						
Low (ref)	15	30	66.7			
Moderate	17	28	62.2	0.82	0.34 - 2.00	0.668
High	22	22	50.0	0.48	0.21 - 1.10	0.083
Ethnic diversity						
High (ref)	24	22	47.8			
Moderate	16	27	62.8	1.84	0.80 - 4.27	0.155
Low	14	31	68.9	2.34	1.00 - 5.49	0.051
Co-Ethnic Concentration						
Low (ref)	15	30	66.7			
Moderate	15	29	65.9	0.97	0.40 - 2.36	0.941
High	24	21	46.7	0.42	0.18 - 0.96	0.040
Other-Ethnic Concentration						
Low (ref)	16	29	64.4			
Moderate	17	27	61.4	0.88	0.37 - 2.07	0.763
High	21	24	53.3	0.60	0.26 - 1.42	0.247

Source: ONS LS, created by the Author

Table 7.31: Multivariate predictors of transitions from homemaking to homemaking or employment among Black Caribbean women between 1991 and 2001

	Baseline			Baseline + non-White %			Baseline + Ethnic diversity			Baseline + co-ethnic %			Baseline + other-ethnic %		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	1.62	0.46	5.74	1.70	0.45	6.46	1.77	0.45	6.90	2.05	0.50	8.47	1.36	0.38	4.93
40 to 54	3.65	0.66	20.29	3.59	0.57	22.51	4.13	0.63	27.26	5.75	0.80	41.46	2.91	0.53	16.06
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	1.19	0.35	4.06	1.40	0.39	5.06	1.41	0.39	5.08	1.71	0.50	5.83	1.23	0.34	4.39
Couple 1991, Single 2001	1.68	0.35	8.03	1.49	0.30	7.38	1.57	0.31	7.90	1.70	0.34	8.52	1.54	0.32	7.38
Single 1991, Couple 2001	4.28	0.71	25.68	4.69	0.69	31.63	5.47	0.77	38.96	**8.50**	**1.19**	**60.96**	4.02	0.61	26.55
Qualifications (ref: none)															
Qualifications	(omitted)			(omitted)			(omitted)			(omitted)			(omitted)		
No qualifications in 1991, gained by 2001	**4.51**	**1.61**	**12.62**	**4.96**	**1.71**	**14.42**	**4.91**	**1.70**	**14.17**	**5.52**	**1.98**	**15.41**	**5.02**	**1.72**	**14.70**
Household tenure (ref: owner)															
Private renter	2.31	0.12	42.88	1.65	0.08	32.95	1.59	0.08	31.05	2.20	0.13	38.52	1.59	0.08	30.24
Social renter	2.65	0.79	8.85	2.64	0.81	8.57	2.53	0.79	8.11	2.28	0.72	7.19	2.71	0.81	9.04
Migrant generation (ref: UK born)															
Migrant	0.98	0.29	3.37	1.21	0.32	4.58	1.10	0.29	4.14	1.04	0.27	4.08	1.31	0.36	4.76
Internal migrant (ref: non-mover)															
Mover	0.75	0.32	1.72	0.78	0.32	1.93	0.75	0.30	1.86	0.82	0.34	1.93	0.76	0.31	1.89
Deprivation (ref: low)															
Moderate	0.58	0.20	1.66	0.70	0.22	2.28	0.75	0.22	2.59	0.80	0.24	2.66	0.57	0.18	1.83
High	0.59	0.18	1.94	0.81	0.21	3.13	0.92	0.23	3.68	1.20	0.31	4.61	0.59	0.15	2.38
Non-White Concentration (ref: low)															
Moderate				0.99	0.28	3.50									
High				0.42	0.12	1.51									
Ethnic diversity (ref: high)															
Moderate							**2.67**	**0.99**	**7.18**						
Low							2.77	0.74	10.35						
Co-Ethnic Concentration (ref: low)															
Moderate										1.08	0.33	3.53			
High										0.30	0.08	1.09			
Other Non-White Concentration (ref: low)															
Moderate													1.30	0.32	5.24
High													0.56	0.17	1.84

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Summary of Study 4

This study has shown how varied the relationship is between neighbourhood and moves from homemaking to employment or unemployment. For example, deprivation reduced the likelihood of moving into employment for White women. In comparison, deprivation made no significant influence on the same transition for Indian or Black Caribbean women. Among White women, non-White concentration, ethnic diversity, and low co-ethnic concentration in neighbourhoods were associated with a lower chance of becoming employed. This was not found for Indian or Black Caribbean women.

White women living in more deprived, ethnically diverse and less co-ethnically concentrated neighbourhoods were significantly more likely to become unemployed. Among Indian women, only those living in more other non-White ethnic concentration were significantly less likely to become unemployed. Similar trends for Black Caribbean women could not be modelled due to small sample sizes.

7.5 Discussion

7.5.1 Main findings

This chapter investigated neighbourhood effects on social mobility between 1991 and 2001 for different ethnic groups in England. Social mobility was defined as transitions in economic status (employment, unemployment, and economic inactivity for homemaking reasons). In extension to my analyses in chapter 5, I examined the interaction between ethnicity and measures of neighbourhood deprivation and ethnic diversity. Furthermore, I introduced two new measures for

measuring different aspects of the ethnic composition of neighbourhoods: co-ethnic concentration and other non-White concentration. The four studies have provided some answers to the questions that I stated at the beginning of this chapter:

1) *To what extent is neighbourhood deprivation associated with change from employment or homemaking into unemployment and reduced chances of leaving unemployment across ethnic groups?*

In chapter 5 I found that deprivation was consistently associated with transitions in economic activity. As deprivation was modelled as a main effect, it was interpreted as the average effect on the study population independent of other factors. However, it is possible that deprivation could have different effects between groups, especially since ethnic minorities were more likely to live in deprived neighbourhoods compared to Whites. In this chapter I investigated this interaction between deprivation and ethnicity on transitions in economic status. The main finding among men was that deprivation was an important predictor of social mobility among Whites, but less consistently for Indians or Black Caribbeans. Study 1 showed deprivation to be significantly associated with becoming unemployed among White men. A similar association was found for Indian men, but not Black Caribbean men. In study 2, the results showed that White men in more deprived neighbourhoods were less likely to find employment. In comparison, Indian men in more deprived neighbourhoods were not less likely to find employment than their peers in affluent areas.

I found similar trends among women. Study 3 showed White and Indian women in more deprived neighbourhoods were likely to become unemployed. Meanwhile, White and Black Caribbean, but not Indian, women in more deprived neighbourhoods were less likely to move

from employment into homemaking. In study 4, White women in more deprived neighbourhoods were less likely to find employment after being a homemaker, but this was not found for Indian or Black Caribbean women. My answer to the question of whether neighbourhood deprivation is associated with transitions into unemployment and reduced chances of finding employment is that it depends on the ethnic group. The social mobility of Whites, but not ethnic minority groups, appears to be more affected by neighbourhood deprivation. The heterogeneity of these results emphasises the added value of investigating the interaction between ethnicity and neighbourhood characteristics when researching social mobility.

2) *To what extent is neighbourhood ethnic diversity associated with change from employment or homemaking into unemployment and reduced chances of leaving unemployment across ethnic groups?*

This question was based on the observation in chapter 5 that ethnic diversity was not associated with these transitions in social mobility. In this chapter, the results suggested that neighbourhood ethnic diversity may be more important for some groups than others. For example, study 1 showed neither measure of ethnic diversity affected the risk of employed White nor Indian men becoming unemployed. However, among Black Caribbean men, being resident in a non-White concentrated neighbourhood was positively associated with becoming unemployed.

In study 2, ethnic diversity did not influence unemployed White or Indian men's chances of finding employment. In study 3, ethnic diversity did not affect employed White, Indian or Black Caribbean women's risk of becoming unemployed. However, Indian and Black Caribbean women in more non-White concentrated and ethnically diverse neighbourhoods were more likely

to transfer from employment into homemaking. In study 4, the likelihood of White homemaking women to become employed was negatively associated with non-White concentration and ethnic diversity. No significant association was found in comparison for Indian and Black Caribbean homemaking women.

My answer to the question of whether neighbourhood ethnic diversity was associated with transitions into unemployment and reduced chances of finding employment is that it also depends upon the ethnic group. However, a broad conclusion is that neighbourhood ethnic diversity appears to be a significant predictor of social mobility more often for ethnic minorities than for the White group. Like study 1, the results here demonstrate heterogeneity in the importance of neighbourhood characteristics for social mobility between different ethnic groups.

3) *To what extent are changes in economic status associated with the concentration of co-ethnics within the neighbourhood?*

This question is new to my thesis and incorporates discussion from the literature review which involved topics of social isolation, ethnic enterprise and local social support networks. However, despite theory linking co-ethnic concentration with social mobility, the results in this chapter offer little support. No significant effects of co-ethnic concentration were found among men of any ethnic group considered for analysis. Some significant associations were found for women, but only for the White group. White women living in more co-ethnically concentrated (i.e. more White) neighbourhoods in 1991 were more at risk of becoming unemployed by 2001 compared to their peers in more diverse neighbourhoods (because neighbourhood White concentration is strongly associated with ethnic diversity). White women homemakers were also more likely to become employed if they were living in a more co-ethnically concentrated neighbourhood. In

summary, I found little evidence that transitions in economic status were associated with the concentration of co-ethnics in the neighbourhood. This was surprisingly the case for ethnic minorities, for whom it was expected that co-ethnic concentration would have the strongest influence.

4) *Among ethnic minority groups, are transitions in social mobility associated with the concentration of non-White ethnic minorities within the neighbourhood?*

This question was first analysed in my thesis in this chapter, and includes discussion from the literature review which involved topics of ethnic minority competition and a different form of social isolation to that described by measures such as non-White concentration. This chapter found few effects of other non-White concentration on transitions in economic activity. For Indian men, living in a neighbourhood with more other non-White concentration was associated with transitions from employment to unemployment. This was not found for White or Black Caribbean men.

The results in this chapter also suggested that employed Black Caribbean women living in more *other non-White* concentrated neighbourhoods were also significantly likely to become homemakers by 2001. Indian women in more *other non-White* ethnically concentrated neighbourhoods were significantly more likely to remain employed. No other significant effects were found for women. Only for Indian men were living in a neighbourhood with more *other non-White* concentration significantly associated with becoming unemployed. However, the majority of the analyses showed no significant association between *other non-White* concentration and transitions in economic activity for Indians and Black Caribbeans.

7.5.2 Interpretation, strengths and weaknesses

This chapter has enhanced our understanding of ethnic inequalities in social mobility and effects of neighbourhood characteristics in various ways which extend the findings reported in chapter 5. White men and women tended to be more negatively affected by living in deprived neighbourhoods compared to ethnic minorities, with a high likelihood of becoming unemployed and reduced chances of finding employment. This can be interpreted in several ways. Statistically, it may be that significant results were found for the White population because sample sizes were sufficiently large. In comparison, the sample sizes for Indians and Black Caribbeans may have been too small to detect significant results. In other words, if sample sizes were larger for the ethnic minority groups, it is possible that significant results might have been found.

However, there are other ways to interpret these results. One way is to suggest that the deprivation which the Townsend index captures only influences the social mobility for Whites. This is not to say that ethnic minorities are unaffected by neighbourhood deprivation, but as some previous studies (e.g. (Davey Smith, 2000)) have suggested, it may be that the Townsend index does not measure the type of deprivation that is relevant to ethnic minorities. At the moment, there are no neighbourhood deprivation measures which have been constructed specifically for ethnic minority groups.

The third possible explanation is related to migration. It is known that racism in the housing and labour markets in the UK resulted in the segregation of ethnic minorities into some of poorest housing in the most deprived neighbourhoods (Phillips, 1998, van Ham and Manley, 2009). There is also a self-selection component, which according to the concept of 'homophilly', people are more likely to associate with others who share similar characteristics (Currarini et al., 2009,

McPherson et al., 2001, Mollica et al., 2003). This can lead to people choosing to live in a neighbourhood which contains people of the same ethnic group as themselves. The lack of deprivation effects found for ethnic minorities may be the result of selective processes. Selective migration, either voluntary or forced, may have resulted in the spatial concentration of ethnic minorities with different life chances for social mobility in deprived neighbourhoods. In comparison, the life chances of White persons are more strongly associated with neighbourhood deprivation. This is because they have not been subject to racism in the housing and labour markets like their ethnic minority peers.

Similar arguments could be put towards interpreting the results of the ethnic diversity, co-ethnic concentration and *other non-White* ethnic concentration measures. At best, the conclusion from this chapter is that these measures may be indicating something important about ethnic inequalities in social mobility. Ethnic diversity appeared to have the most consistent effect on transitions on social mobility. In comparison to the vast literature on ethnic segregation, most of which uses a percentage co-ethnic concentration or the two-group segregation indices (e.g. (Simpson, 2007)), the analysis of ethnic diversity represents a step forward. Very little evidence was found to suggest that co-ethnic concentration was an important predictor of social mobility. The measure of *other non-White* concentration, used to identify potential for ethnic minority competition, was rarely associated with any transition in economic activity. It is difficult to conclude whether there are real effects of neighbourhood ethnic composition on transitions in economic activity. The small sample sizes for ethnic minorities meant that the models in this chapter possibly lacked statistical power to detect significant associations.

7.6 Conclusion

This chapter has extended the analysis of chapter 5 by examining for ethnic-specific effects of neighbourhood characteristics on transitions in social mobility. The key result was that deprivation appeared to affect Whites far more than Indians and Black Caribbeans. Neighbourhood ethnic composition was less consistently associated with social mobility, although there were some significant results. Small sample sizes restricted the extent that I was able to interpret whether the results were a reflection of real-life trends, or a problem of under-powered modelling. Further research with larger data, when available, is needed to repeat these analyses and also to explore ethnic-specific trends in social class mobility.

8. Are inequalities in social class mobility within ethnic groups associated with the deprivation and ethnic composition of neighbourhoods?

8.1 Introduction

In chapter 6, I investigated whether neighbourhood deprivation and ethnic diversity explained ethnic inequalities in social class mobility. However, it is possible that the effects of these neighbourhood characteristics on social class mobility varies between ethnic groups. The aim of this chapter is to explore the interaction between neighbourhood characteristics and ethnic groups on the likelihood of experiencing social class mobility. The analyses presented in this chapter focus on whether social class mobility is associated with neighbourhood characteristics among White, Indian and Black Caribbean ethnic groups separately. Social class mobility is defined as transition from one occupational social class to another (high, middle, or low). Of the following questions, two are informed by my results from chapter 6, and two more are new to my thesis:

1) *To what extent does neighbourhood deprivation increase the likelihood of downward social class mobility and decrease the likelihood of upward social class mobility within ethnic groups?*

   [This question is based on my observation in chapter 6 that neighbourhood deprivation was consistently associated with these transitions in social mobility as a main effect. So the focus is now whether there is a consistent association within ethnic groups]

2) *To what extent is neighbourhood ethnic diversity associated with social class mobility within ethnic groups?*

   [This question is based on my observation that neighbourhood ethnic diversity was not associated with social class mobility as a main effect. In this chapter, I explore whether neighbourhood ethnic diversity is consistently unimportant when investigating individual ethnic groups separately]

3) *To what extent is social class mobility associated with the concentration of co-ethnics (people of the same ethnic group) within the neighbourhood?*

   [This question is motivated by discussion in my literature review which involved the topics of social isolation, ethnic enterprise and local social support networks]

4) *Among ethnic minority groups, is social class mobility associated with the concentration of non-White ethnic minorities within the neighbourhood?*

   [This question is based on discussion in the literature review which involved the topic of ethnic minority competition]

8.2 Data

8.2.1 Sample

The data in this chapter was taken from the ONS LS and sampled in the same way as in chapter 6 (men must be of a 18-54 years old in 1991, women must be 18-49 years old in 1991; all living in

an urban ward in England in 1991, and also present in England in 2001). There are two major differences from chapter 6. First, the sample is now broken down in this chapter into separate ethnic and gender groups. As I reported in chapter 6, the sample sizes in each ethnic minority group vary. Among Whites, Indians and Black Caribbeans, the sample sizes were often large enough for separate analysis. However, for the other ethnic minority groups, the sample sizes were too small from which to realistically obtain reliable results. Therefore, the analyses in this chapter focused on White, Indian and Black Caribbean ethnic groups only.

The second major change from chapter 6 is the addition of two new independent variables to the models. These variables (co-ethnic concentration, and other non-White ethnic concentration) were both used in chapter 7. A full list of dependent and independent variables is explained below.

8.2.2 Dependent and independent variables

The dependent variables I focus on in this chapter are as follows:

Men and women:

1. Low to middle or high social class
2. Middle to high or low social class
3. High to middle or low social class

I explore their level of association with several independent variables, all of which were defined in the Data and Method chapter:

Individual-level: age group; change in educational qualifications (1991-2001); change in couple status (1991-2001); migrant generation status (born in UK/overseas); internal migration within the UK; household tenure

Neighbourhood-level: Townsend deprivation; ethnic diversity (non-White concentration (indirect measure) and the Herfindahl index (direct measure)); co-ethnic concentration; other non-White ethnic concentration, all calculated for 1991 census wards

Region: 'Standard Region' of residence in 1991

8.3 Analysis

8.3.1 Descriptive statistics

Table 8.1: Transition from low to either middle or high class among men between 1991 and 2001

	White		Indian		Black Caribbean	
	N	%	N	%	N	%
Low to Low	18,866	70.0	495	72.9	188	70.9
Low to Middle	3,057	11.3	108	15.9	35	13.2
Low to High	5,036	18.7	76	11.2	42	15.8
Total	26,959		679		265	

Source: ONS LS, created by the Author

Table 8-1 illustrates the descriptive statistics of men who were in low class occupations in 1991. 70% of White men remained in low class occupations by 2001. A slightly higher percentage of Indian and Black Caribbean men did the same. In comparison, 18.7% of White men moved from

low to high class occupations. Only 11.2% of Indians moved from low to high class occupations. At 15.8%, Black Caribbean men were in between Indian and White men. However, a greater percentage of Indian and Black Caribbean men moved from low to middle class occupations than White men.

Table 8.2: Transitions from low to middle or high class among women between 1991 and 2001

	White		Indian		Black Caribbean	
	N	%	N	%	N	%
Low to Low	11,356	67.1	388	75.6	83	58.5
Low to Middle	2,739	16.2	74	14.4	25	17.6
Low to High	2,824	16.7	51	9.9	34	23.9
Total	16,919		513		142	

Source: ONS LS, created by the Author

Table 8-2 shows the descriptive statistics for the sample of women who were in low class occupations in 1991. 67.1% of White women remained in low class occupations. This was lower than the 75.6% of Indian women who also remained in the low social class. However, unlike their male peers, Black Caribbean women were the least likely to remain in low class occupations at only 58.5%. The percentage of White women who moved from low to middle or low to high class occupations was almost equal. Among Indian women, the percentage moving from low to middle or low to high occupations were below that for Whites. In comparison, Black Caribbean women were more likely to move from low to middle, and especially, low to high class occupations (23.9%) than White or Indian women.

Table 8.3: Transitions from middle to high or low class among men between 1991 and 2001

	White		Indian	
	N	%	N	%
Middle to Middle	7,761	49.0	278	57.7
Middle to High	5,159	32.6	129	26.8
Middle to Low	2,904	18.4	75	15.6
Total	15,824		482	

Source: ONS LS, created by the Author

Table 8-3 shows the descriptive statistics for men who were in middle class occupations in 1991. 49% of White men remained in middle class occupations compared to 57.7% of Indian men. 32.6% of White men were upwardly mobile to the high class. In comparison, only 26.8% of Indian men achieved the same upward mobility. The levels of downward mobility were broadly similar between each ethnic group, although slightly lower for Indian men (15.6%) compared to White men (18.4%).

Table 8.4: Transitions from middle to high or low class among women between 1991 and 2001

	White		Indian		Black Caribbean	
	N	%	N	%	N	%
Middle to Middle	8,476	49.8	218	59.6	98	46.4
Middle to High	5,842	34.3	97	26.5	86	40.8
Middle to Low	2,716	15.9	51	13.9	27	12.8
Total	17,034		366		211	

Source: ONS LS, created by the Author

Table 8-4 shows the descriptive statistics of women who were in middle class occupations in 1991. 49.8% of White women remained in middle class occupations, compared to 59.6% of Indian women and 46.4% of Black Caribbean women. 40.8% of Black Caribbean women were upwardly mobile to high class occupations. This was a higher percentage compared with White (34.3%) and Indian (26.5%) women. Black Caribbean women were also the least likely to be downwardly mobile at 12.8%.

Table 8.5: Transitions from high to middle or low class among men between 1991 and 2001

	White		Indian	
	N	%	N	%
High to High	18,847	78.9	388	79.3
High to Middle	2,673	11.2	64	13.9
High to Low	2,376	9.9	37	7.6
Total	23,896		489	

Source: ONS LS, created by the Author

Table 8-5 shows the descriptive statistics for men who were in high class occupations in 1991. The percentage of White and Indian men who remained in high class occupations was similar. A slightly higher percentage of Indian men (13.9%) were downwardly mobile from high to middle class occupations than White men (11.2%). However, the opposite was observed for moves from high to low class occupations, with a slightly higher rate among White men (9.9%) compared to Indian men (7.6%). The sample size for Black Caribbean men was too small in this sample for analysis.

Table 8.6: Transitions from high to middle or low class among women between 1991 and 2001

	White		Indian	
	N	%	N	%
High to High	10,295	76.8	176	84.6
High to Middle	1,835	13.7	32	15.4
High to Low	1,273	9.5	0	0.0
Total	13,403		208	

Source: ONS LS, created by the Author

Table 8-6 shows the descriptive statistics for women who were in high class occupations in 1991. Due to small sample sizes in the Black Caribbean group, White women could only be compared to Indian women. Furthermore, only moves from high to middle class occupations could be analysed for Indian women, as there were no moves from high to low class for reliable analysis.

76.8% of White women and 84.6% of Indian women remained in high class occupations. Indian women were slightly more likely to move from high to middle class occupations than White women. 9.5% of White women moved from high to low class occupations.

8.3.2 Modelling strategy

The modelling strategy for this chapter shares similarities to that explained in chapter 7. Multinomial logit regression was used for the analyses of men and most women, where the dependent variables were coded into three categories: 1) social immobility (e.g. low class to low class); 2) social mobility (e.g. low to middle class); 3) social mobility (e.g. low to high class). Social immobility was used as the base category in all multinomial logit regression models. Only for Indian women who were in high class occupations in 1991 was a different method: the binary logit regression (as discussed in previous chapters), because the small sample size meant that only a binary dependent variable could be analysed.

These models were explained in more detail in chapter 5. The format of presentation was relative risk ratios (and odds ratios for binary logit regression). Broadly, these ratios indicate the likelihood of social mobility occurring by 2001, versus the chance of remaining in the same social class as was occupied in 1991. All models used the Huber White sandwich estimator and robust standard errors to adjust for the clustering of individuals within wards.

8.4 Results

8.4.1 Study 1: Low to middle or high class among men

8.4.1.1 White men

Table 8-7 shows the descriptive statistics and univariate multinomial logit regression model results for White men who were in low class occupations in 1991 and each of the independent variables. As the White group were the by far the largest within my earlier analyses, it is not surprising that the descriptive and model results are broadly in line with those already reported.

Table 8-8 shows the results for low to middle class transitions. The baseline model shows that after controlling for all individual and household characteristics, White men living in deprived neighbourhoods were significantly less likely to achieve low to middle class mobility. Adding non-White concentration, ethnic diversity, and co-ethnic concentration to the baseline model made little difference to the deprivation association. Furthermore, these indicators of neighbourhood ethnic composition had no significant independent effect on low to middle class mobility.

Table 8-9 shows the results for low to high class mobility, which were slightly different to those in Table 8-8. The baseline model shows that White men in more deprived neighbourhoods were significantly less likely to experience low to high class mobility, after controlling for individual and household characteristics. All measures of neighbourhood ethnic composition were also important. White men in more non-White concentrated, more ethnically diverse and less co-ethnically concentrated neighbourhoods were significantly more likely to experience low to high social class mobility.

Table 8.7: Univariate predictors of transitions from low to low, middle or high class among White men between 1991 and 2001

	N Low to Low	N Low to Middle	% Socially Mobile	RRR	95% CIs	p-value	N Low to High	% Socially Mobile	RRR	95% CIs	p-value
Age											
18 to 29 (ref)	6,865	1,448	13.3				2,572	23.6			
30 to 39	5,401	816	10.7	0.72	0.66-0.79	<0.001	1,417	18.6	0.70	0.65-0.76	<0.001
40 to 54	6,600	793	9.4	0.57	0.52-0.63	<0.001	1,047	12.4	0.43	0.39-0.46	<0.001
Couple status											
Couple 1991 & 2001 (ref)	9,848	1,405	10.4				2,255	16.7			
Single 1991 & 2001	5,041	890	12.2	1.23	1.13-1.35	<0.001	1,382	18.9	1.18	1.09-1.27	<0.001
Couple 1991, Single 2001	1,417	245	12.0	1.21	1.05-1.41	0.010	372	18.3	1.14	1.01-1.29	0.040
Single 1991, Couple 2001	2,560	517	12.6	1.42	1.28-1.59	<0.001	1,027	25.0	1.74	1.59-1.89	<0.001
Qualifications											
No qualifications (ref)	7,402	784	8.8				704	7.9			
Qualifications	292	88	10.9	2.86	2.22-3.67	<0.001	428	53.0	15.50	13.02-18.4	<0.001
No qualifications in 1991, gained by 2001	11,165	2,184	12.7	1.84	1.69-2.02	<0.001	3,903	22.6	3.66	3.35-3.99	<0.001
Household tenure											
Owner (ref)	14,341	2,419	11.6				4,069	19.5			
Private renter	784	179	14.2	1.34	1.14-1.59	0.001	299	23.7	1.30	1.14-1.49	<0.001
Social renter	3,704	452	9.4	0.72	0.65-0.81	<0.001	643	13.4	0.61	0.56-0.67	<0.001
Migrant generation											
UK born (ref)	18,320	2,941	11.2				4,892	18.7			
Migrant	546	116	14.4	1.29	1.05-1.59	0.017	144	17.9	0.99	0.822-1.19	0.904
Internal migrant											
Non-mover (ref)	9,978	1,301	9.9				1,909	14.5			
Mover	8,884	1,756	12.8	1.51	1.40-1.64	<0.001	3,126	22.7	1.83	1.72-1.95	<0.001
Standard region 1991											
South East (ref)	5,027	1,050	13.5				1,688	21.7			
North	1,630	208	9.5	0.62	0.52-0.72	<0.001	345	15.8	0.63	0.55-0.71	<0.001
Yorkshire	2,498	319	9.6	0.61	0.53-0.69	<0.001	518	15.5	0.62	0.55-0.69	<0.001

East Midlands	2,003	282	10.2	0.66	0.58-0.76	<0.001	490	17.7	0.72	0.64-0.80	<0.001
East Anglia	889	123	9.8	0.67	0.55-0.81	<0.001	247	19.6	0.83	0.72-0.96	0.011
South West	1,711	306	12.3	0.85	0.74-0.98	0.028	475	19.1	0.82	0.72-0.92	0.001
West Midlands	2,495	316	9.3	0.61	0.53-0.70	<0.001	605	17.7	0.73	0.65-0.81	<0.001
North West	2,610	453	12.1	0.83	0.73-0.94	0.004	667	17.9	0.75	0.68-0.83	<0.001
Deprivation											
Low	5920	1084	12.2				1917	21.5			
Moderate	6282	987	11.1	0.86	0.78-0.95	0.002	1642	18.4	0.81	0.75-0.87	<0.001
High	6533	950	10.7	0.79	0.72-0.88	<0.001	1395	15.7	0.66	0.61-0.71	<0.001
Non-White Concentration											
Low	6472	943	10.6				1489	16.7			
Moderate	6127	1027	11.5	1.15	1.04-1.27	0.005	1758	19.7	1.25	1.15-1.35	<0.001
High	6136	1051	11.8	1.18	1.07-1.30	0.001	1707	19.2	1.21	1.12-1.31	<0.001
Herfindahl Index											
High	6151	1052	11.8				1709	19.2			
Moderate	6113	1026	11.5	0.98	0.89-1.08	0.701	1756	19.7	1.03	0.96-1.12	0.402
Low	6471	943	10.6	0.85	0.77-0.94	0.001	1489	16.7	0.83	0.77-0.90	<0.001

Source: ONS LS, created by the Author

Table 8.8: Multivariate predictors of transitions from low to low or middle class among White men between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)									
30 to 39	**0.81**	**0.73**	**0.90**	**0.81**	**0.73**	**0.90**	**0.81**	**0.73**	**0.90**
40 to 54	**0.72**	**0.64**	**0.81**	**0.72**	**0.64**	**0.81**	**0.72**	**0.64**	**0.81**
Couple status (ref: couple in 1991 and 2001)									
Single 1991 & 2001	0.96	0.87	1.07	0.96	0.87	1.07	0.96	0.87	1.07
Couple 1991, Single 2001	1.06	0.92	1.24	1.07	0.92	1.24	1.07	0.92	1.24
Single 1991, Couple 2001	0.98	0.86	1.12	0.98	0.86	1.12	0.98	0.86	1.12
Qualifications (ref: none)									
Qualifications	**2.37**	**1.84**	**3.06**	**2.37**	**1.84**	**3.05**	**2.37**	**1.84**	**3.05**
No qualifications in 1991, gained by 2001	**1.56**	**1.41**	**1.72**	**1.56**	**1.41**	**1.72**	**1.56**	**1.41**	**1.72**
Household tenure (ref: owner)									
Private renter	1.13	0.96	1.35	1.13	0.95	1.35	1.13	0.95	1.35
Social renter	**0.75**	**0.67**	**0.84**	**0.75**	**0.67**	**0.84**	**0.75**	**0.67**	**0.84**
Migrant generation (ref: UK born)									
Migrant	**1.28**	**1.03**	**1.59**	**1.26**	**1.02**	**1.57**	**1.26**	**1.02**	**1.57**
Internal migrant (ref: non-mover)									
Mover	**1.25**	**1.14**	**1.36**	**1.25**	**1.14**	**1.36**	**1.25**	**1.14**	**1.36**
Deprivation (ref: low)									
Moderate	**0.89**	**0.81**	**0.98**	**0.88**	**0.80**	**0.97**	**0.88**	**0.80**	**0.97**
High	**0.89**	**0.80**	**0.99**	**0.86**	**0.78**	**0.96**	**0.86**	**0.78**	**0.96**
Non-White Concentration (ref: low)									
Moderate				1.06	0.96	1.18			
High				1.11	0.99	1.25			
Herfindahl Index (ref: high)									
Moderate							0.96	0.86	1.06
Low							0.90	0.80	1.01

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Table 8.9: Multivariate predictors of transitions from low to low or high class among White men between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)									
30 to 39	**0.85**	**0.78**	**0.93**	**0.85**	**0.78**	**0.92**	**0.85**	**0.78**	**0.92**
40 to 54	**0.66**	**0.60**	**0.73**	**0.66**	**0.60**	**0.73**	**0.66**	**0.60**	**0.73**
Couple status (ref: couple in 1991 and 2001)									
Single 1991 & 2001	**0.85**	**0.78**	**0.93**	**0.84**	**0.77**	**0.92**	**0.84**	**0.77**	**0.92**
Couple 1991, Single 2001	0.94	0.82	1.07	0.94	0.82	1.07	0.94	0.82	1.07
Single 1991, Couple 2001	1.03	0.92	1.14	1.02	0.92	1.14	1.02	0.92	1.14
Qualifications (ref: none)									
Qualifications	**12.36**	**10.36**	**14.76**	**12.35**	**10.35**	**14.74**	**12.35**	**10.35**	**14.74**
No qualifications in 1991, gained by 2001	**2.94**	**2.68**	**3.22**	**2.94**	**2.68**	**3.22**	**2.94**	**2.68**	**3.22**
Household tenure (ref: owner)									
Private renter	1.08	0.94	1.25	1.08	0.94	1.25	1.08	0.94	1.25
Social renter	**0.73**	**0.66**	**0.81**	**0.74**	**0.67**	**0.81**	**0.74**	**0.67**	**0.81**
Migrant generation (ref: UK born)									
Migrant	1.03	0.84	1.25	1.01	0.83	1.23	1.01	0.83	1.23
Internal migrant (ref: non-mover)									
Mover	**1.38**	**1.28**	**1.49**	**1.38**	**1.28**	**1.49**	**1.38**	**1.28**	**1.49**
Deprivation (ref: low)									
Moderate	**0.87**	**0.81**	**0.94**	**0.85**	**0.79**	**0.92**	**0.85**	**0.79**	**0.93**
High	**0.79**	**0.72**	**0.86**	**0.76**	**0.69**	**0.83**	**0.76**	**0.69**	**0.83**
Non-White Concentration (ref: low)									
Moderate				**1.17**	**1.07**	**1.27**			
High				**1.21**	**1.10**	**1.32**			
Herfindahl Index (ref: high)									
Moderate							0.97	0.89	1.06
Low							**0.83**	**0.76**	**0.91**

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

8.4.1.2 Indian

Table 8-10 shows the descriptive statistics and results for univariate multinomial logit regression models for Indian men in lower social class occupations in 1991. Similar to White men, older Indian men were significantly less likely to be upwardly mobile. Single Indian men who became part of a couple by 2001 were significantly more likely to move from low to high social class than those in a couple in 1991 and 2001. Men with qualifications were significantly more likely to move from low to high class occupations.

Private renters were more upwardly mobile than homeowners. Social renters were not significantly more or less likely to be socially mobile than homeowners. Indian men born overseas were significantly less likely to move from low to high class occupations than those born in the UK. Those who moved home between 1991 and 2001 were more likely to be upwardly mobile. Indian men living in Yorkshire and the West Midlands were significantly more likely to be upwardly mobile compared to those in the South East. Neighbourhood deprivation, non-White concentration, ethnic diversity and other non-White ethnic concentration were all not significantly associated with upward mobility. Indian men living in neighbourhoods with a moderate level of co-ethnic concentration were significantly less likely to experience upward mobility compared to those in less co-ethnically concentrated neighbourhoods.

Table 8.10: Univariate predictors of transitions from low to low, middle or high class among Indian men between 1991 and 2001

	N Low to Low	N Low to Middle	% Socially Mobile	RRR	95% CIs	p-value	N Low to High	% Socially Mobile	RRR	95% CIs	p-value
Age											
18 to 29 (ref)	105	31	18.3				33	19.5			
30 to 39	225	53	17.7	0.81	0.50-1.31	0.390	21	7.0	**0.31**	**0.18-0.55**	**<0.001**
40 to 54	165	24	11.4	**0.48**	**0.26-0.86**	**0.014**	22	10.4	**0.44**	**0.26-0.76**	**0.003**
Couple status											
Couple 1991 & 2001 (ref)	419	91	16.3				48	8.6			
Single 1991 & 2001	25	BLANKED	17.6	1.16	0.46-2.89	0.753	BLANKED	8.8	1.09	0.33-3.63	0.893
Couple 1991, Single 2001	18	BLANKED	12.0	0.82	0.23-2.85	0.752	BLANKED	16.0	2.04	0.66-6.30	0.213
Single 1991, Couple 2001	33	BLANKED	12.9	1.12	0.50-2.51	0.777	21	**33.9**	**5.27**	**2.90-9.57**	**<0.001**
Qualifications											
No qualifications (ref)	236	48	16.4				BLANKED	3.1			
Qualifications	BLANKED	BLANKED	16.7	2.44	0.71-8.34	0.156	12	**50.0**	**38.98**	**12.04-126.25**	**<0.001**
No qualifications in 1991, gained by 2001	250	55	15.3	1.06	0.70-1.61	0.778	55	**15.3**	**5.66**	**2.74-11.70**	**<0.001**
Household tenure											
Owner (ref)	448	94	15.5				64	10.6			
Private renter	11	BLANKED	30.4	**3.31**	**1.32-8.34**	**0.011**	BLANKED	21.7	**3.53**	**1.18-10.54**	**0.024**
Social renter	35	BLANKED	14.3	0.81	0.33-2.01	0.652	BLANKED	14.3	1.41	0.60-3.34	0.431
Migrant generation											
UK born (ref)	41	14	19.7				16	22.5			
Migrant	454	94	15.5	0.61	0.32-1.13	0.116	60	9.9	**0.34**	**0.17-0.65**	**0.001**
Internal migrant											
Non-mover (ref)	324	58	13.7				41	9.7			
Mover	171	50	19.5	**1.69**	**1.08-2.62**	**0.021**	35	13.7	1.59	0.95-2.67	0.076
Standard region 1991											
South East (ref)	224	50	15.8				43	13.6			
North	BLANKED	BLANKED	0.0				BLANKED	50.0	3.51	0.45-27.14	0.229
Yorkshire	16	BLANKED	36.0	**2.49**	**1.06-5.83**	**0.036**	BLANKED	0.0	-		

East Midlands	75	11	11.3	0.60	0.29-1.23	0.164	11	11.3	0.78	0.36-1.70	0.535
East Anglia	BLANKED	BLANKED	0.0	0.88	0.09-8.36	0.914	BLANKED	0.0	1.05	0.11-9.95	0.964
South West	BLANKED	BLANKED	0.0	0.93	0.54-1.58	0.777	BLANKED	37.5	2.10	0.36-12.32	0.409
West Midlands	148	31	16.1	1.16	0.37-3.64	0.795	14	7.3	**0.50**	**0.26-0.95**	**0.034**
North West	19	BLANKED	18.5				BLANKED	11.1	0.83	0.22-3.20	0.788
Deprivation											
Low	163	38	17.0				23	10.3			
Moderate	169	35	15.6	0.89	0.51-1.54	0.674	21	9.3	0.88	0.45-1.74	0.713
High	159	32	14.5	0.89	0.53-1.51	0.666	29	13.2	1.34	0.73-2.45	0.346
Non-White Concentration											
Low	164	37	16.5				23	10.3			
Moderate	158	43	19.1	1.21	0.72-2.02	0.475	24	10.7	1.08	0.56-2.08	0.810
High	169	25	11.4	0.68	0.38-1.24	0.208	26	11.8	1.14	0.62-2.10	0.676
Herfindahl Index											
High	164	35	15.6				25	11.2			
Moderate	164	34	15.2	0.97	0.56-1.70	0.919	26	11.6	1.04	0.56-1.96	0.903
Low	163	36	16.3	1.06	0.60-1.88	0.832	22	10.0	0.93	0.50-1.70	0.804
Co-Ethnic Concentration											
Low	151	43	19.2				30	13.4			
Moderate	177	32	14.2	0.64	0.38-1.08	0.093	17	7.5	**0.48**	**0.24-0.97**	**0.041**
High	163	30	13.7	0.67	0.38-1.17	0.156	26	11.9	0.83	0.47-1.48	0.533
Other-Ethnic Concentration											
Low	165	38	17.0				21	9.4			
Moderate	169	35	15.3	0.90	0.53-1.54	0.698	25	10.9	1.16	0.61-2.20	0.645
High	157	32	14.8	0.91	0.52-1.60	0.748	27	12.5	1.40	0.74-2.65	0.298

Source: ONS LS, created by the Author Significant odds ratios ($p<0.05$) are highlighted in bold

Table 8-11 and 8-12 show the results of multivariate multinomial logit regression models for Indian men who were in low class occupations in 1991. The baseline model shows that after controlling for all individual and household characteristics, deprivation was not significantly associated with low to middle class mobility. Most of the other independent variables, including those describing neighbourhood ethnic composition, were not significantly related to social mobility. The only variable that remained significant was the higher rate of mobility among private renters compared to homeowners.

Table 8-12 shows the results of the multivariate models for low to high class mobility among Indian men. After controlling for individual and household characteristics, there were no significant associations between neighbourhood characteristics and upward mobility. Single men who became part of a couple were more likely to be socially mobile compared to their peers who were part of a couple in 1991 and 2001. Men with qualifications remained significantly more likely to move from low to high class occupations than those with no qualifications.

Table 8.11: Multivariate predictors of transitions from low to low or middle class among Indian men between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl			Baseline + co-ethnic			Baseline + other-ethnic		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	0.93	0.49	1.77	0.90	0.48	1.71	0.94	0.49	1.79	0.92	0.49	1.76	0.92	0.48	1.76
40 to 54	0.52	0.25	1.10	0.51	0.24	1.06	0.52	0.25	1.10	0.51	0.24	1.08	0.52	0.25	1.09
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	0.58	0.21	1.66	0.54	0.19	1.54	0.59	0.21	1.67	0.57	0.20	1.62	0.58	0.20	1.68
Couple 1991, Single 2001	0.83	0.23	2.95	0.85	0.24	3.06	0.82	0.23	2.92	0.83	0.23	2.96	0.83	0.23	2.98
Single 1991, Couple 2001	0.66	0.21	2.05	0.62	0.20	1.95	0.67	0.22	2.06	0.66	0.21	2.05	0.66	0.21	2.05
Qualifications (ref: none)															
Qualifications	2.87	0.76	10.89	2.85	0.75	10.86	2.90	0.76	11.11	2.81	0.72	10.93	2.87	0.75	10.94
No qualifications in 1991, gained by 2001	0.94	0.61	1.46	0.98	0.63	1.52	0.94	0.60	1.47	0.93	0.60	1.44	0.95	0.61	1.47
Household tenure (ref: owner)															
Private renter	**3.59**	**1.29**	**9.99**	**3.47**	**1.21**	**10.00**	**3.59**	**1.30**	**9.94**	**3.61**	**1.28**	**10.19**	**3.61**	**1.29**	**10.06**
Social renter	0.85	0.34	2.12	0.84	0.34	2.08	0.86	0.35	2.14	0.80	0.32	1.98	0.84	0.34	2.09
Migrant generation (ref: UK born)															
Migrant	0.53	0.23	1.22	0.54	0.24	1.24	0.52	0.23	1.20	0.56	0.24	1.30	0.54	0.23	1.23
Internal migrant (ref: non-mover)															
Mover	1.48	0.91	2.42	1.43	0.88	2.32	1.48	0.91	2.42	1.50	0.92	2.43	1.49	0.91	2.42
Deprivation (ref: low)															
Moderate	0.92	0.53	1.61	0.97	0.53	1.79	0.89	0.48	1.65	1.01	0.56	1.85	1.00	0.53	1.89
High	0.82	0.47	1.41	0.96	0.47	1.95	0.76	0.39	1.50	0.90	0.49	1.67	0.95	0.45	1.98
Non-White Concentration (ref: low)															
Moderate				1.19	0.67	2.11									
High				0.74	0.33	1.64									
Herfindahl Index (ref: high)															
Moderate							0.91	0.50	1.66						
Low							0.90	0.44	1.84						
Co-Ethnic Concentration (ref: low)															
Moderate										0.66	0.37	1.17			
High										0.76	0.39	1.47			
Other-Ethnic Concentration (ref: low)															
Moderate													0.87	0.49	1.54
High													0.80	0.37	1.74

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Table 8.12: Multivariate predictors of transitions from low to low or high class among Indian men between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl			Baseline + co-ethnic			Baseline + other-ethnic		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	0.60	0.30	1.23	0.60	0.30	1.22	0.60	0.30	1.23	0.62	0.30	1.27	0.60	0.29	1.23
40 to 54	0.80	0.38	1.68	0.80	0.38	1.68	0.81	0.38	1.70	0.82	0.39	1.75	0.80	0.38	1.68
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	0.55	0.15	2.05	0.55	0.14	2.11	0.54	0.15	2.01	0.53	0.14	2.00	0.54	0.15	2.00
Couple 1991, Single 2001	2.57	0.60	10.96	2.56	0.60	10.99	2.57	0.60	11.08	2.66	0.65	10.90	2.52	0.57	11.14
Single 1991, Couple 2001	**2.50**	**1.05**	**5.96**	**2.49**	**1.05**	**5.92**	**2.51**	**1.05**	**6.04**	**2.52**	**1.05**	**6.05**	**2.53**	**1.05**	**6.05**
Qualifications (ref: none)															
Qualifications	**30.52**	**9.21**	**101.14**	**30.78**	**9.26**	**102.27**	**30.69**	**9.23**	**101.99**	**30.76**	**9.02**	**104.92**	**30.29**	**9.13**	**100.46**
No qualifications in 1991, gained by 2001	**4.36**	**2.08**	**9.12**	**4.37**	**2.10**	**9.06**	**4.44**	**2.12**	**9.28**	**4.32**	**2.05**	**9.10**	**4.36**	**2.08**	**9.12**
Household tenure (ref: owner)															
Private renter	2.06	0.62	6.78	2.04	0.62	6.73	2.09	0.63	6.92	2.03	0.62	6.59	2.08	0.64	6.80
Social renter	1.01	0.38	2.66	1.02	0.38	2.71	0.98	0.37	2.64	0.99	0.37	2.67	1.00	0.38	2.64
Migrant generation (ref: UK born)															
Migrant	0.69	0.26	1.81	0.69	0.26	1.81	0.70	0.26	1.88	0.70	0.27	1.82	0.69	0.26	1.82
Internal migrant (ref: non-mover)															
Mover	1.30	0.70	2.42	1.30	0.69	2.43	1.28	0.68	2.39	1.34	0.71	2.53	1.29	0.70	2.40
Deprivation (ref: low)															
Moderate	0.98	0.47	2.04	0.96	0.44	2.07	0.99	0.46	2.12	1.04	0.49	2.19	0.98	0.44	2.17
High	1.25	0.62	2.50	1.20	0.44	3.25	1.29	0.52	3.18	1.27	0.56	2.88	1.31	0.50	3.42
Non-White Concentration (ref: low)															
Moderate				1.09	0.51	2.32									
High				1.06	0.40	2.82									
Herfindahl Index (ref: high)															
Moderate							1.25	0.62	2.53						
Low							1.09	0.46	2.57						
Co-Ethnic Concentration (ref: low)															
Moderate										0.52	0.26	1.08			
High										0.86	0.41	1.83			
Other-Ethnic Concentration (ref: low)															
Moderate													1.12	0.52	2.40
High													0.95	0.36	2.49

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

8.4.1.3 Black Caribbean

Table 8-13 shows the descriptive statistics and results of the univariate multinomial logit regression models for Black Caribbean men in low class occupations in 1991. Older men were significantly less likely to achieve low to high class mobility. Single men who became part of a couple were significantly more likely to experience low to high class mobility than those who were in a couple in 1991 and 2001. Men with qualifications were more likely to experience upward mobility than those with no qualifications. Upward mobility did not vary among Black Caribbean men in different household tenure. Black Caribbean men born overseas were significantly less likely to be upwardly mobile compared to those born in the UK.

Table 8-14 and 8-15 show the results of multivariate multinomial logit regression models of Black Caribbean men in low class occupations in 1991. Table 8-14 shows the results for low to middle class transitions. The baseline model shows that when controlling for all individual and household characteristics, neighbourhood was not significantly associated with upward mobility.

Table 8-15 shows the results for low to high class mobility. Black Caribbean men with qualifications were significantly upwardly mobile. However, the very wide confidence intervals suggest that this result is not very reliable, although statistically significant. Migrant generation remained important, with Black Caribbean men born overseas significantly less likely to move from low to high class occupations than those born in the UK. At baseline, deprivation was not significantly associated with upward mobility. Controlling for non-White concentration or ethnic diversity coincided with deprivation becoming significantly positively associated with low to high class mobility. Furthermore, upward mobility was more likely among those living in less non-White, less ethnically diverse neighbourhoods. However, the wide confidence intervals of these results mean that they are unlikely to be reliable (Figure 8-15).

Table 8.13: Univariate predictors of transitions from low to low, middle or high class among Black Caribbean men between 1991 and 2001

	N Low to Low	N Low to Middle	% Socially Mobile	RRR	95% CIs	p-value	N Low to High	% Socially Mobile	RRR	95% CIs	p-value
Age											
18 to 29 (ref)	58	12	13.0				22	23.9			
30 to 39	49	14	18.7	1.38	0.58-3.30	0.467	12	16.0	0.76	0.29-1.45	0.287
40 to 54	81	BLANKED	9.2	0.54	0.21-1.35	0.186	BLANKED	8.2	**0.26**	**0.11-0.62**	**0.002**
Couple status											
Couple 1991 & 2001 (ref)	83	18	15.9				12	10.6			
Single 1991 & 2001	64	11	12.8	0.79	0.35-1.79	0.574	11	12.8	1.19	0.50-2.85	0.698
Couple 1991, Single 2001	17	BLANKED	0.0	0.27	0.03-2.18	0.219	BLANKED	22.7	1.63	0.48-5.58	0.438
Single 1991, Couple 2001	24	BLANKED	11.4	0.96	0.32-2.89	0.943	15	34.1	**4.32**	**1.83-10.21**	**0.001**
Qualifications											
No qualifications (ref)	72	BLANKED	9.4				BLANKED	5.9			
Qualifications	BLANKED	BLANKED	0.0	4.50	0.37-55.41	0.240	BLANKED	50.0	**14.40**	**1.65-125.58**	**0.016**
No qualifications in 1991, gained by 2001	114	26	14.9	2.05	0.90-4.71	0.090	35	20.0	**4.42**	**1.64-11.95**	**0.003**
Household tenure											
Owner (ref)	130	23	12.6				30	16.4			
Private renter	13	BLANKED	0.0	0.44	0.05-3.50	0.434	BLANKED	18.8	0.67	0.14-3.12	0.607
Social renter	45	11	16.7	1.38	0.62-3.07	0.427	10	15.2	0.96	0.44-2.13	0.926
Migrant generation											
UK born (ref)	67	17	15.0				29	25.7			
Migrant	121	18	11.8	0.59	0.28-1.23	0.155	13	8.6	**0.25**	**0.12-0.51**	**<0.001**
Internal migrant											
Non-mover (ref)	99	20	14.8				16	11.9			
Mover	89	15	11.5	0.83	0.40-1.75	0.633	26	20.0	1.81	0.92-3.56	0.087
Standard region 1991											
South East (ref)	104	29	17.8				30	18.4			
North	BLANKED	BLANKED					BLANKED				
Yorkshire	16	BLANKED					BLANKED	15.8			

East Midlands	11	BLANKED					BLANKED	21.4			
East Anglia	BLANKED	BLANKED					BLANKED				
South West	BLANKED	BLANKED	50.0				BLANKED				
West Midlands	46	BLANKED	5.5				BLANKED	10.9			
North West	BLANKED	BLANKED					BLANKED				
Deprivation											
Low	65	10	11.4				13	14.8			
Moderate	62	13	14.9	1.36	0.58-3.23	0.481	12	13.8	0.97	0.42-2.26	0.939
High	61	12	13.8	1.30	0.53-3.17	0.564	14	16.1	1.25	0.57-2.73	0.576
Non-White Concentration											
Low	64	BLANKED	9.1				16	18.2			
Moderate	61	13	14.9	1.71	0.68-4.27	0.255	13	14.9	0.85	0.40-1.83	0.682
High	63	14	16.1	1.81	0.73-4.48	0.202	10	11.5	0.71	0.31-1.65	0.424
Herfindahl Index											
High	62	14	15.9				12	13.6			
Moderate	62	13	14.9	0.93	0.41-2.10	0.859	12	13.8	1.00	0.42-2.36	1.000
Low	64	BLANKED	9.2	0.56	0.23-1.39	0.214	15	17.2	1.31	0.58-2.98	0.516
Co-Ethnic Concentration											
Low	66	BLANKED	9.1				14	15.9			
Moderate	60	13	14.9	1.79	0.71-4.51	0.219	14	16.1	1.10	0.50-2.45	0.815
High	62	14	16.1	1.89	0.76-4.71	0.170	11	12.6	0.93	0.41-2.09	0.855
Other-Ethnic Concentration											
Low	66	BLANKED	8.0				15	17.0			
Moderate	60	14	16.1	2.20	0.86-5.62	0.099	13	14.9	0.95	0.44-2.08	0.904
High	62	14	16.1	2.16	0.84-5.58	0.110	11	12.6	0.87	0.38-1.97	0.731

Source: ONS LS, created by the Author

Table 8.14: Multivariate predictors of transitions from low to low or middle class among Black Caribbean men between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl			Baseline + co-ethnic			Baseline + other-ethnic		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	1.56	0.40	6.08	1.57	0.40	6.18	1.57	0.40	6.18	1.55	0.40	5.97	1.54	0.39	6.04
40 to 54	0.49	0.10	2.28	0.45	0.10	2.03	0.46	0.10	2.04	0.45	0.10	2.05	0.40	0.09	1.80
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	0.43	0.14	1.34	0.43	0.14	1.31	0.43	0.14	1.32	0.43	0.14	1.33	0.43	0.14	1.34
Couple 1991, Single 2001	0.35	0.04	2.94	0.36	0.04	3.24	0.36	0.04	3.21	0.35	0.04	3.25	0.32	0.04	2.72
Single 1991, Couple 2001	0.51	0.14	1.84	0.53	0.15	1.90	0.52	0.15	1.89	0.51	0.14	1.81	0.51	0.14	1.88
Qualifications (ref: none)															
Qualifications	5.03	0.56	44.73	4.89	0.55	43.66	4.88	0.55	43.64	4.96	0.54	45.58	4.98	0.55	45.04
No qualifications in 1991, gained by 2001	1.72	0.70	4.24	1.68	0.68	4.14	1.68	0.68	4.17	1.69	0.69	4.18	1.74	0.68	4.40
Household tenure (ref: owner)															
Private renter	0.50	0.05	5.14	0.52	0.05	5.53	0.52	0.05	5.53	0.53	0.05	5.38	0.50	0.05	4.68
Social renter	1.54	0.61	3.85	1.64	0.67	4.01	1.63	0.67	3.96	1.60	0.64	4.02	1.73	0.69	4.30
Migrant generation (ref: UK born)															
Migrant	0.71	0.18	2.78	0.75	0.20	2.89	0.75	0.20	2.89	0.75	0.18	3.11	0.84	0.22	3.21
Internal migrant (ref: non-mover)															
Mover	0.66	0.27	1.58	0.64	0.26	1.57	0.64	0.26	1.58	0.65	0.27	1.58	0.61	0.24	1.51
Deprivation (ref: low)															
Moderate	1.14	0.45	2.91	1.01	0.33	3.09	1.04	0.34	3.16	1.07	0.41	2.83	0.85	0.28	2.57
High	1.16	0.47	2.88	0.89	0.26	3.08	0.93	0.27	3.21	1.00	0.29	3.42	0.67	0.22	2.06
Non-White Concentration (ref: low)															
Moderate				1.18	0.40	3.46									
High				1.53	0.40	5.84									
Herfindahl Index (ref: high)															
Moderate							0.77	0.29	2.08						
Low							0.70	0.18	2.71						
Co-Ethnic Concentration (ref: low)															
Moderate										1.24	0.40	3.89			
High										1.31	0.34	4.99			
Other-Ethnic Concentration (ref: low)															
Moderate													1.88	0.64	5.49
High													2.92	0.83	10.24

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Table 8.15: Multivariate predictors of transitions from low to low or high class among Black Caribbean men between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl			Baseline + co-ethnic			Baseline + other-ethnic		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	1.28	0.48	3.42	1.07	0.39	2.93	1.05	0.38	2.87	1.25	0.46	3.41	1.25	0.47	3.34
40 to 54	1.26	0.31	5.20	1.18	0.28	4.95	1.19	0.28	4.96	1.37	0.32	5.81	1.29	0.32	5.27
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	0.55	0.20	1.51	0.49	0.17	1.43	0.49	0.17	1.43	0.55	0.20	1.55	0.50	0.17	1.42
Couple 1991, Single 2001	1.25	0.29	5.40	1.28	0.30	5.55	1.26	0.29	5.48	1.31	0.29	5.84	1.33	0.31	5.67
Single 1991, Couple 2001	2.43	0.81	7.27	2.34	0.73	7.47	2.39	0.75	7.59	2.43	0.80	7.36	2.33	0.76	7.13
Qualifications (ref: none)															
Qualifications	**16.01**	**2.07**	**123.97**	**18.29**	**2.02**	**165.58**	**18.40**	**1.97**	**172.07**	**17.73**	**2.25**	**139.71**	**16.65**	**2.02**	**137.57**
No qualifications in 1991, gained by 2001	**4.90**	**1.56**	**15.36**	**5.26**	**1.49**	**18.52**	**5.30**	**1.50**	**18.69**	**5.50**	**1.50**	**20.18**	**4.95**	**1.50**	**16.30**
Household tenure (ref: owner)															
Private renter	0.31	0.04	2.35	0.33	0.05	2.39	0.33	0.05	2.40	0.29	0.04	2.01	0.35	0.05	2.60
Social renter	0.75	0.25	2.24	0.72	0.24	2.20	0.74	0.24	2.26	0.73	0.25	2.13	0.77	0.26	2.31
Migrant generation (ref: UK born)															
Migrant	**0.22**	**0.07**	**0.70**	**0.22**	**0.07**	**0.71**	**0.23**	**0.07**	**0.72**	**0.21**	**0.07**	**0.70**	**0.21**	**0.07**	**0.66**
Internal migrant (ref: non-mover)															
Mover	1.00	0.44	2.27	0.98	0.43	2.19	0.96	0.43	2.14	0.97	0.43	2.19	1.04	0.46	2.37
Deprivation (ref: low)															
Moderate	1.02	0.39	2.70	2.03	0.71	5.85	2.03	0.70	5.85	1.48	0.52	4.27	1.47	0.51	4.22
High	1.45	0.54	3.90	**3.80**	**1.04**	**13.90**	**3.70**	**1.01**	**13.52**	2.80	0.85	9.21	2.42	0.72	8.18
Non-White Concentration (ref: low)															
Moderate				**0.32**	**0.11**	**0.94**									
High				**0.20**	**0.06**	**0.75**									
Herfindahl Index (ref: high)															
Moderate							1.38	0.46	4.17						
Low							**4.72**	**1.30**	**17.13**						
Co-Ethnic Concentration (ref: low)															
Moderate										0.51	0.16	1.61			
High										0.32	0.10	1.06			
Other-Ethnic Concentration (ref: low)															
Moderate													0.53	0.19	1.47
High													0.41	0.12	1.44

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Summary of Study 1

This study has shown that neighbourhood deprivation was associated with reduced chances for upward social class mobility among White men. There was also some evidence that the ethnic composition of neighbourhoods affected social mobility among White men, with those in more diverse neighbourhoods achieving more upward mobility. This was generally not found for Indian or Black Caribbean men. One reason was that small samples of Indian and Black Caribbean men reduced the power of the statistical models to find significant associations. Another explanation is that neighbourhood was important for upward mobility among White men, but less so for Indian and Black Caribbean men. It was also notable that Black Caribbean men appeared to have higher upward social mobility compared to their White peers.

8.4.2 Study 2: Low to middle and high class among women

8.4.2.1 White women

Table 8-16 shows the descriptive statistics and results of the univariate multinomial logit regression models for White women in low class occupations in 1991. The results of these descriptive analyses are in line with those reported in Chapter 6.

Table 8.16: Univariate predictors of transitions from low to low, middle or high class among White women between 1991 and 2001

	N Low to Low	N Low to Middle	% Socially Mobile	RRR	95% CIs	p-value	N Low to High	% Socially Mobile	RRR	95% CIs	p-value
Age											
18 to 29 (ref)	3,327	1,126	19.7				1,263	22.1			
30 to 39	3,589	889	16.5	0.73	0.66-0.81	<0.001	910	16.9	0.68	0.61-0.75	<0.001
40 to 49	4,440	724	12.5	0.48	0.43-0.53	<0.001	651	11.2	0.39	0.35-0.44	<0.001
Couple status											
Couple 1991 & 2001 (ref)	6,545	1,412	15.2				1,339	14.4			
Single 1991 & 2001	2,337	637	16.9	1.25	1.13-1.39	<0.001	786	20.9	1.61	1.46-1.79	<0.001
Couple 1991, Single 2001	1,234	298	16.3	1.12	0.98-1.29	0.109	296	16.2	1.18	1.02-1.36	0.024
Single 1991, Couple 2001	1,240	392	19.3	1.46	1.28-1.65	<0.001	403	19.8	1.57	1.38-1.78	<0.001
Qualifications											
No qualifications (ref)	5,262	584	9.3				456	7.2			
Qualifications	111	76	19.1	6.19	4.58-8.37	<0.001	210	52.9	21.75	16.95-27.92	<0.001
No qualifications in 1991, gained by 2001	5,980	2,078	20.3	3.14	2.85-3.46	<0.001	2,158	21.1	4.10	3.68-4.57	<0.001
Household tenure											
Owner (ref)	8,510	2,208	17.1				2,194	17.0			
Private renter	435	153	19.4	1.33	1.10-1.62	0.004	202	25.6	1.71	1.42-2.04	<0.001
Social renter	2,382	373	11.8	0.61	0.54-0.68	<0.001	413	13.0	0.67	0.60-0.75	<0.001
Migrant generation											
UK born (ref)	11,026	2,635	16.1				2,719	16.6			
Migrant	330	104	19.3	1.33	1.06-1.67	0.015	105	19.5	1.27	1.02-1.59	0.037
Internal migrant											
Non-mover (ref)	6,559	1,224	13.6				1,225	13.6			
Mover	4,796	1,515	19.2	1.60	1.56-1.84	<0.001	1,597	20.2	1.77	1.63-1.93	<0.001
Standard region 1991											
South East (ref)	2,883	877	18.6				953	20.2			
North	928	176	13.6	0.62	0.51-0.75	<0.001	188	14.6	0.62	0.51-0.74	<0.001
Yorkshire	1,501	324	14.9	0.71	0.61-0.75	<0.001	355	16.3	0.72	0.63-0.83	<0.001

East Midlands	1,210	267	15.4	0.72	0.62-0.84	<0.001	258	14.9	0.66	0.56-0.77	<0.001
East Anglia	527	129	16.8	0.81	0.67-1.00	0.045	113	14.7	0.65	0.52-0.82	<0.001
South West	1,212	269	15.4	0.74	0.63-0.86	<0.001	268	15.3	0.67	0.58-0.78	<0.001
West Midlands	1,455	306	14.8	0.70	0.60-0.81	<0.001	306	14.8	0.64	0.56-0.75	<0.001
North West	1,638	390	16.2	0.78	0.68-0.90	<0.001	383	15.9	0.71	0.62-0.82	<0.001
Deprivation											
Low	3528	1059	18.9				1011	18.1			
Moderate	3859	869	15.5	0.75	0.68-0.83	<0.001	867	15.5	0.78	0.71-0.87	<0.001
High	3893	785	14.1	0.67	0.60-0.75	<0.001	896	16.1	0.80	0.72-0.89	<0.001
Non-White Concentration											
Low	3931	833	14.9				827	14.8			
Moderate	3773	903	16.2	1.13	1.02-1.26	0.026	913	16.3	1.15	1.04-1.28	0.010
High	3576	977	17.5	1.29	1.16-1.43	<0.001	1034	18.5	1.37	1.24-1.53	<0.001
Herfindahl Index											
High	3577	977	17.5				1035	18.5			
Moderate	3775	903	16.2	0.88	0.79-0.97	0.013	912	16.3	0.84	0.75-0.93	0.001
Low	3928	833	14.9	0.78	0.70-0.86	<0.001	827	14.8	0.73	0.66-0.81	<0.001

Source: ONS LS, created by the Author

Table 8.17: Multivariate predictors of transitions from low to low or middle class among White women between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)									
30 to 39	0.98	0.87	1.10	0.98	0.87	1.10	0.98	0.87	1.11
40 to 54	**0.78**	**0.68**	**0.88**	**0.78**	**0.68**	**0.88**	**0.78**	**0.68**	**0.88**
Couple status (ref: couple in 1991 and 2001)									
Single 1991 & 2001	1.01	0.89	1.14	1.00	0.89	1.13	1.00	0.89	1.13
Couple 1991, Single 2001	0.97	0.84	1.12	0.96	0.83	1.11	0.96	0.83	1.11
Single 1991, Couple 2001	0.94	0.81	1.09	0.94	0.81	1.09	0.94	0.81	1.09
Qualifications (ref: none)									
Qualifications	**5.00**	**3.70**	**6.77**	**4.95**	**3.65**	**6.69**	**4.95**	**3.65**	**6.70**
No qualifications in 1991, gained by 2001	**2.64**	**2.38**	**2.93**	**2.64**	**2.38**	**2.94**	**2.64**	**2.38**	**2.94**
Household tenure (ref: owner)									
Private renter	1.02	0.83	1.25	1.00	0.81	1.23	1.00	0.81	1.23
Social renter	**0.66**	**0.58**	**0.75**	**0.66**	**0.58**	**0.75**	**0.66**	**0.58**	**0.75**
Migrant generation (ref: UK born)									
Migrant	**1.29**	**1.02**	**1.62**	1.24	0.98	1.56	1.24	0.98	1.56
Internal migrant (ref: non-mover)									
Mover	**1.36**	**1.23**	**1.50**	**1.36**	**1.23**	**1.50**	**1.36**	**1.23**	**1.50**
Deprivation (ref: low)									
Moderate	**0.81**	**0.73**	**0.90**	**0.78**	**0.70**	**0.87**	**0.78**	**0.70**	**0.87**
High	**0.80**	**0.72**	**0.90**	**0.73**	**0.65**	**0.83**	**0.73**	**0.65**	**0.83**
Non-White Concentration (ref: low)									
Moderate				1.07	0.95	1.19			
High				**1.35**	**1.19**	**1.52**			
Herfindahl Index (ref: high)									
Moderate							**0.79**	**0.71**	**0.89**
Low							**0.74**	**0.66**	**0.84**

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Tables 8-17 and 8-18 show the results of the multivariate multinomial logit regression models for White women who were in low class occupations in 1991. Many of the associations found in univariate models remained in the multivariate model for low to middle class (Table 8-17). After controlling for individual and household characteristics, White women in more deprived neighbourhoods were significantly less likely to achieve low to middle class mobility (baseline model). Each measure of neighbourhood ethnic composition was also significantly associated with social mobility among White women. Those living in more non-White concentrated, more ethnically diverse, and less co-ethnically concentrated neighbourhoods were significantly more likely to experience upward mobility.

Table 8-18 shows the results for low to high class transitions among White women. Similar associations were found to the univariate models results. Women in more deprived neighbourhoods were significantly less likely to experience upward mobility, after controlling for individual and household characteristics. Adding measures of ethnic composition to the baseline model produced further significant associations. Women in more non-White concentrated neighbourhoods, with greater ethnic diversity, and with lower co-ethnic concentration, were significantly more likely to be upwardly mobile.

Table 8.18: Multivariate predictors of transitions from low to low or high class among White women between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)									
30 to 39	0.96	0.86	1.08	0.96	0.86	1.08	0.96	0.86	1.08
40 to 54	**0.71**	**0.63**	**0.81**	**0.71**	**0.62**	**0.81**	**0.71**	**0.62**	**0.81**
Couple status (ref: couple in 1991 and 2001)									
Single 1991 & 2001	**1.19**	**1.06**	**1.34**	**1.19**	**1.05**	**1.34**	**1.19**	**1.05**	**1.34**
Couple 1991, Single 2001	1.01	0.87	1.18	1.01	0.87	1.17	1.01	0.87	1.17
Single 1991, Couple 2001	0.92	0.80	1.07	0.93	0.80	1.07	0.93	0.80	1.07
Qualifications (ref: none)									
Qualifications	**17.31**	**13.43**	**22.32**	**17.13**	**13.29**	**22.09**	**17.14**	**13.29**	**22.10**
No qualifications in 1991, gained by 2001	**3.38**	**3.01**	**3.80**	**3.39**	**3.01**	**3.80**	**3.39**	**3.01**	**3.80**
Household tenure (ref: owner)									
Private renter	1.18	0.97	1.44	1.16	0.96	1.41	1.16	0.96	1.41
Social renter	**0.70**	**0.61**	**0.79**	**0.69**	**0.61**	**0.79**	**0.69**	**0.61**	**0.79**
Migrant generation (ref: UK born)									
Migrant	1.15	0.91	1.46	1.11	0.88	1.42	1.11	0.88	1.42
Internal migrant (ref: non-mover)									
Mover	**1.27**	**1.15**	**1.40**	**1.27**	**1.16**	**1.40**	**1.27**	**1.16**	**1.40**
Deprivation (ref: low)									
Moderate	**0.84**	**0.76**	**0.94**	**0.82**	**0.73**	**0.91**	**0.82**	**0.73**	**0.91**
High	0.96	0.86	1.07	**0.88**	**0.78**	**0.99**	**0.88**	**0.78**	**0.99**
Non-White Concentration (ref: low)									
Moderate				1.05	0.94	1.18			
High				**1.30**	**1.15**	**1.48**			
Herfindahl Index (ref: high)									
Moderate							**0.81**	**0.72**	**0.90**
Low							**0.77**	**0.68**	**0.87**

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

8.4.2.2 Indian women

Table 8-19 shows the descriptive statistics and results of the univariate multinomial logit regression models for Indian women in low class occupations in 1991 and 2001. Older Indian women were significantly less likely to experience low to high class mobility. Age was not a significant predictor of low to middle class mobility. Women who were single in 1991 and 2001, or who were single but then became part of a couple, were significantly more likely to achieve low to high class mobility than those who were in a couple in 1991 and 2001. However, the small sample size in this transition reduces the reliability of this result.

Women with qualifications were significantly more likely to be upwardly mobile. Compared to homeowners, social renters were significantly more likely to achieve low to high class mobility, but again, the small sample size may make this result unreliable. No significant variation in social mobility was found across regions, or by neighbourhood deprivation. Neither did social mobility vary according to neighbourhood non-White concentration, or the non-White *other ethnic minority* concentration. In comparison, Indian women in less ethnically diverse and less co-ethnically concentrated neighbourhoods were significantly more likely to experience low to high class mobility.

Tables 8-20 and 8-21 show the results of multivariate multinomial logit regression models for Indian women in low class occupations in 1991. Table 8-20 shows the results for low to middle class transitions. Indian women who gained qualifications were more likely to achieve upward mobility than those without qualifications. Those who had qualifications in 1991 and 2001 were no more likely to achieve upward mobility.

Table 8.19: Univariate predictors of transitions from low to low, middle or high class among Indian women between 1991 and 2001

	N Low to Low	N Low to Middle	% Socially Mobile	RRR	95% CIs	p-value	N Low to High	% Socially Mobile	RRR	95% CIs	p-value
Age											
18 to 29 (ref)	87	19	15.2				19	15.2			
30 to 39	189	43	16.9	1.11	0.61-2.02	0.745	22	8.7	0.54	0.28-1.02	0.059
40 to 49	112	12	9.0	0.52	0.23-1.15	0.106	10	7.5	0.41	0.19-0.89	0.025
Couple status											
Couple 1991 & 2001 (ref)	341	61	14.0				34	7.8			
Single 1991 & 2001	16	BLANKED	25.8	2.44	0.97-6.11	0.057	BLANKED	22.6	4.38	1.71-11.21	0.002
Couple 1991, Single 2001	22	BLANKED	10.3	0.76	0.22-2.67	0.668	BLANKED	13.8	1.82	0.59-5.65	0.302
Single 1991, Couple 2001	BLANKED	BLANKED	16.7	1.24	0.26-5.83	0.787	BLANKED	33.3	6.67	2.25-19.76	0.001
Qualifications											
No qualifications (ref)	227	26	9.8				12	4.5			
Qualifications	BLANKED	BLANKED	0.0	4.54	0.40-51.90	0.224	BLANKED	62.5	47.29	8.17-273.83	<0.001
No qualifications in 1991, gained by 2001	159	47	19.6	2.70	1.57-4.64	<0.001	34	14.2	4.07	1.90-8.72	<0.001
Household tenure											
Owner (ref)	367	72	14.9				44	9.1			
Private renter	BLANKED	BLANKED					BLANKED	25.0	1.85	0.38-8.90	0.445
Social renter	12	BLANKED	15.0	0.86	0.19-3.87	0.843	BLANKED	25.0	3.46	1.14-10.49	0.028
Migrant generation											
UK born (ref)	19	BLANKED	15.6				BLANKED	25.0			
Migrant	369	69	14.3	0.70	0.25-1.94	0.495	43	8.9	0.28	0.12-0.66	0.004
Internal migrant											
Non-mover (ref)	277	43	12.3				29	8.3			
Mover	111	31	19.0	1.76	1.06-2.90	0.028	21	12.9	1.82	1.04-3.21	0.037
Standard region 1991											
South East (ref)	205	43	15.4				32	11.4			
North	BLANKED	BLANKED					BLANKED				
Yorkshire	BLANKED	BLANKED	25.0	2.16	0.63-7.35	0.218	BLANKED	18.8	1.42	0.21-9.39	0.718

East Midlands	62	10	13.0	0.78	0.35-1.75	0.552	BLANKED	6.5	0.51	0.18-1.44	0.207
East Anglia	BLANKED	BLANKED					BLANKED				
South West	BLANKED	BLANKED					BLANKED				
West Midlands	92	16	13.4	0.85	0.44-1.62	0.611	11	9.2	0.76	0.38-1.54	0.449
North West	13	BLANKED					BLANKED				
Deprivation											
Low	123	30	17.5				18	10.5			
Moderate	139	20	11.6	0.59	0.32-1.11	0.100	13	7.6	0.64	0.29-1.40	0.262
High	126	24	14.1				20	11.8			
Non-White Concentration											
Low	123	25	14.6				23	13.5			
Moderate	128	27	15.8	1.03	0.56-1.93	0.906	16	9.4	0.67	0.33-1.37	0.269
High	137	22	12.9				12	7.0			
Herfindahl Index											
High	133	26	15.2				12	7.0			
Moderate	132	22	12.9	0.85	0.45-1.61	0.623	16	9.4	1.34	0.61-2.95	0.461
Low	123	26	15.1	1.05	0.57-1.92	0.879	23	13.4	2.09	1.02-4.27	0.043
Co-Ethnic Concentration											
Low	116	30	17.5				25	14.6			
Moderate	138	19	11.2	0.53	0.28-1.01	0.052	13	7.6	0.44	0.20-0.94	0.033
High	134	25	14.5	0.70	0.38-1.27	0.241	13	7.6	0.45	0.22-0.92	0.028
Other-Ethnic Concentration											
Low	128	25	14.6				18	10.5			
Moderate	132	26	15.0	1.01	0.54-1.89	0.979	15	8.7	0.81	0.39-1.68	0.567
High	128	23	13.6	0.89	0.47-1.69	0.714	18	10.7	1.01	0.48-2.10	0.983

Source: ONS LS, created by the Author

Private renters were significantly less likely to achieve upward mobility than homeowners, but this association was unreliable due to small sample size. Women who moved home between 1991 and 2001 were significantly more likely to experience low to middle class mobility. After controlling for individual and household characteristics, the measures of neighbourhood deprivation and ethnic composition were not significantly associated with upward mobility.

Table 8-21 shows the results for low to high class mobility. Single Indian women, who became part of a couple, and also those with qualifications, were more likely to achieve upward social mobility. Neighbourhood deprivation was not independently associated with moves from low to high class occupations. However, Indian women living in more non-White concentrated and more ethnically diverse neighbourhoods were significantly less likely to achieve low to middle class mobility. Co-ethnic concentration and other non-White concentration were not significantly associated with social mobility.

Table 8.20: Multivariate predictors of transitions from low to low or middle class among Indian women between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl			Baseline + co-ethnic			Baseline + other-ethnic		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	1.69	0.83	3.44	1.72	0.84	3.55	1.68	0.83	3.43	1.64	0.81	3.33	1.69	0.83	3.43
40 to 54	0.84	0.35	2.02	0.86	0.35	2.07	0.82	0.34	1.98	0.82	0.34	1.96	0.83	0.35	1.97
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	2.46	0.96	6.31	2.39	0.95	6.03	**2.55**	**1.01**	**6.48**	2.45	0.93	6.45	2.42	0.94	6.27
Couple 1991, Single 2001	0.69	0.19	2.56	0.73	0.20	2.68	0.71	0.19	2.68	0.65	0.17	2.47	0.71	0.19	2.59
Single 1991, Couple 2001	0.77	0.15	4.06	0.75	0.15	3.86	0.76	0.15	3.89	0.77	0.14	4.18	0.76	0.15	3.90
Qualifications (ref: none)															
Qualifications	3.82	0.29	50.94	4.14	0.29	58.62	3.98	0.31	51.38	3.27	0.25	43.18	3.93	0.30	50.91
No qualifications in 1991, gained by 2001	**2.65**	**1.49**	**4.70**	**2.68**	**1.51**	**4.76**	**2.63**	**1.49**	**4.66**	**2.57**	**1.46**	**4.52**	**2.65**	**1.49**	**4.71**
Household tenure (ref: owner)															
Private renter	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Social renter	0.71	0.18	2.84	0.67	0.17	2.57	0.72	0.18	2.88	0.75	0.18	3.05	0.70	0.18	2.72
Migrant generation (ref: UK born)															
Migrant	0.80	0.23	2.76	0.77	0.22	2.66	0.79	0.23	2.70	0.78	0.23	2.70	0.81	0.23	2.78
Internal migrant (ref: non-mover)															
Mover	**1.96**	**1.14**	**3.37**	**1.99**	**1.16**	**3.44**	**1.99**	**1.16**	**3.41**	**2.00**	**1.16**	**3.44**	**1.97**	**1.14**	**3.38**
Deprivation (ref: low)															
Moderate	0.58	0.30	1.11	0.58	0.29	1.17	0.51	0.25	1.06	0.59	0.30	1.18	0.56	0.28	1.12
High	0.72	0.37	1.40	0.73	0.33	1.63	0.60	0.26	1.39	0.76	0.37	1.55	0.70	0.30	1.61
Non-White Concentration (ref: low)															
Moderate				1.27	0.61	2.66									
High				0.95	0.42	2.15									
Herfindahl Index (ref: high)															
Moderate							0.78	0.39	1.56						
Low							0.74	0.32	1.70						
Co-Ethnic Concentration (ref: low)															
Moderate										0.57	0.28	1.15			
High										0.86	0.43	1.72			
Other-Ethnic Concentration (ref: low)															
Moderate													1.16	0.54	2.51
High													1.07	0.45	2.58

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Table 8.21: Multivariate predictors of transitions from low to low or high class among Indian women between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl			Baseline + co-ethnic			Baseline + other-ethnic		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	1.46	0.64	3.30	1.52	0.67	3.47	1.52	0.67	3.44	1.43	0.64	3.20	1.47	0.65	3.35
40 to 54	0.91	0.34	2.45	1.00	0.37	2.65	0.97	0.36	2.58	0.89	0.34	2.31	0.95	0.35	2.58
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	2.52	0.70	9.10	2.32	0.63	8.56	2.17	0.60	7.82	2.53	0.74	8.64	2.55	0.70	9.34
Couple 1991, Single 2001	2.07	0.60	7.11	1.83	0.52	6.51	1.83	0.51	6.51	1.88	0.53	6.61	1.99	0.59	6.73
Single 1991, Couple 2001	**4.04**	**1.12**	**14.52**	**4.81**	**1.38**	**16.82**	**4.80**	**1.33**	**17.27**	**4.13**	**1.14**	**14.91**	**4.15**	**1.17**	**14.76**
Qualifications (ref: none)															
Qualifications	**39.61**	**4.91**	**319.60**	**36.52**	**4.65**	**286.79**	**37.13**	**4.68**	**294.76**	**32.18**	**4.48**	**230.93**	**39.87**	**4.71**	**337.83**
No qualifications in 1991, gained by 2001	**2.94**	**1.36**	**6.36**	**2.95**	**1.35**	**6.46**	**3.00**	**1.39**	**6.47**	**2.89**	**1.33**	**6.30**	**2.95**	**1.37**	**6.34**
Household tenure (ref: owner)															
Private renter	1.29	0.26	6.50	1.24	0.26	5.95	1.16	0.22	6.12	1.22	0.21	6.92	1.25	0.26	6.08
Social renter	2.81	0.87	9.12	2.59	0.77	8.65	2.79	0.85	9.11	2.69	0.74	9.86	2.84	0.86	9.36
Migrant generation (ref: UK born)															
Migrant	0.39	0.12	1.27	0.39	0.12	1.26	0.39	0.12	1.28	0.38	0.11	1.25	0.39	0.12	1.28
Internal migrant (ref: non-mover)															
Mover	1.38	0.73	2.60	1.35	0.70	2.59	1.33	0.69	2.56	1.35	0.71	2.59	1.37	0.73	2.60
Deprivation (ref: low)															
Moderate	0.84	0.35	2.03	1.19	0.51	2.78	1.27	0.55	2.96	1.05	0.40	2.76	0.91	0.39	2.15
High	1.08	0.47	2.51	1.86	0.78	4.43	1.98	0.82	4.78	1.41	0.58	3.45	1.19	0.43	3.31
Non-White Concentration (ref: low)															
Moderate				0.58	0.28	1.21									
High				**0.35**	**0.15**	**0.85**									
Herfindahl Index (ref: high)															
Moderate							1.99	0.82	4.84						
Low							**3.21**	**1.37**	**7.55**						
Co-Ethnic Concentration (ref: low)															
Moderate										0.45	0.19	1.08			
High										0.47	0.21	1.09			
Other-Ethnic Concentration (ref: low)															
Moderate													0.75	0.33	1.73
High													0.81	0.30	2.21

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

8.4.2.3 Black Caribbean women

Table 8-22 shows the results of the descriptive statistics and univariate multinomial logit regression models for Black Caribbean women who were in low class occupations in 1991. It should be noted that this analysis suffers from very low sample size, so interpretation should be with added caution. Older women were significantly less likely to achieve upward mobility. Those who became part of a couple were significantly more likely to move from low to middle class occupations. Women with qualifications were more upwardly mobile than those without qualifications. The likelihood of upward mobility did not vary significantly by household tenure. Black Caribbean women born outside the UK were significantly less likely to move from low to high class occupations than those born in the UK. Moving home between 1991 and 2001 was significantly related to a lower chance of low to high class mobility. No significant variation in social mobility across regions or neighbourhood characteristics was found.

Table 8-23 and 8-24 shows the results of multivariate multinomial logit regression models for Black Caribbean women in 1991. Table 8-23 shows the results for low to middle class mobility. At baseline, deprivation was not significantly associated with upward mobility. Neither were any of the individual or household characteristics, except for women with qualifications in 1991 and 2001, but this result was unreliable due to very small sample size. The neighbourhood ethnic composition measures tended not to add any new information, although when controlling for the other non-White ethnic concentration, the deprivation variable became significantly negatively associated with upward mobility. Similarly, a lack of significant results is shown in Table 8-24 for low to high class mobility.

Table 8.22: Univariate predictors of transitions from low to low, middle or high class among Black Caribbean women between 1991 and 2001

	N Low to Low	N Low to Middle	% Socially Mobile	RRR	95% CIs	p-value	N Low to High	% Socially Mobile	RRR	95% CIs	p-value
Age											
18 to 29 (ref)	27	11	17.5				25	39.7			
30 to 39	25	BLANKED	22.5	0.76	0.28-2.07	0.587	BLANKED	15.0	0.25	0.09-0.70	0.008
40 to 49	31	BLANKED	12.8	0.38	0.12-1.19	0.096	BLANKED	7.7	0.10	0.03-0.37	0.001
Couple status											
Couple 1991 & 2001 (ref)	25	BLANKED	8.8				BLANKED	17.6			
Single 1991 & 2001	44	15	18.8	4.36	0.92-20.67	0.064	21	26.3	2.04	0.72-5.3	0.179
Couple 1991, Single 2001	BLANKED	BLANKED	30.0	5.36	0.72-39.96	0.102	BLANKED	0.0	0.60	0.06-5.85	0.656
Single 1991, Couple 2001	BLANKED	BLANKED	23.5	7.14	1.07-47.78	0.043	BLANKED	35.3	3.57	0.87-14.68	0.078
Qualifications											
No qualifications (ref)	32	BLANKED	10.3				BLANKED	7.7			
Qualifications	BLANKED	BLANKED	0.0	-			BLANKED	100.0	42.72	3.50-521.91	0.003
No qualifications in 1991, gained by 2001	50	21	21.4	3.27	1.03-10.33	0.044	27	27.6	5.88	1.63-21.19	0.007
Household tenure											
Owner (ref)	41	14	18.7				20	26.7			
Private renter	BLANKED	BLANKED	0.0	0.98	0.11-9.09	0.983	BLANKED	50.0	2.05	0.38-11.09	0.405
Social renter	39	10	16.7	0.69	0.27-1.79	0.449	11	18.3	0.59	0.26-1.36	0.215
Migrant generation											
UK born (ref)	31	12	17.6				25	36.8			
Migrant	52	13	17.6	0.57	0.24-1.37	0.213	BLANKED	12.2	0.21	0.09-0.50	<0.001
Internal migrant											
Non-mover (ref)	52	13	16.5				14	17.7			
Mover	31	12	19.0	1.39	0.58-3.34	0.459	20	31.7	2.35	1.05-5.25	0.037
Standard region 1991											
South East (ref)	46	16	19.8				19	23.5			
North	BLANKED	BLANKED					BLANKED				
Yorkshire	BLANKED	BLANKED	20.0	0.60	0.06-5.60	0.654	BLANKED	20.0	0.47	0.05-4.36	0.509

East Midlands	BLANKED	BLANKED					BLANKED				
East Anglia	BLANKED	BLANKED					BLANKED				
South West	BLANKED	BLANKED					BLANKED	37.5	0.95	0.17-5.34	0.951
West Midlands	14	BLANKED	16.0	0.86	0.25-2.90	0.804	BLANKED	28.0	1.18	0.46-3.08	0.729
North West	BLANKED	BLANKED					BLANKED				
Deprivation											
Low	25	BLANKED	19.1				13	27.7			
Moderate	28	10	21.3	0.99	0.34-2.94	0.989	BLANKED	19.1	0.62	0.23-1.70	0.350
High	30	BLANKED	12.5	0.48	0.14-1.60	0.232	12	25.0	0.80	0.32-1.96	0.620
Non-White Concentration											
Low	29	BLANKED	10.6				13	27.7			
Moderate	27	11	23.4	2.36	0.73-7.68	0.153	BLANKED	19.1	0.74	0.28-1.99	0.556
High	27	BLANKED	18.8	1.79	0.52-6.16	0.359	12	25.0	1.03	0.41-2.59	0.951
Herfindahl Index											
High	27	BLANKED	16.7				13	27.1			
Moderate	27	11	23.9	1.38	0.46-4.12	0.569	BLANKED	17.4	0.62	0.23-1.67	0.341
Low	29	BLANKED	12.5	0.60	0.18-2.07	0.422	13	27.1	0.96	0.39-2.37	0.937
Co-Ethnic Concentration											
Low	28	BLANKED	12.8				13	27.7			
Moderate	25	12	25.5	2.24	0.74-6.83	0.156	10	21.3	0.86	0.33-2.28	0.764
High	30	BLANKED	14.6	0.97	0.28-3.36	0.956	11	22.9	0.82	0.32-2.07	0.669

Source: ONS LS, created by the Author

Table 8.23: Multivariate predictors of transitions from low to low or middle class among Black Caribbean women between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl			Baseline + co-ethnic			Baseline + other-ethnic		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	0.76	0.13	4.57	0.51	0.08	3.43	0.58	0.09	3.75	0.73	0.11	5.03	0.48	0.07	3.38
40 to 54	0.33	0.05	2.06	0.19	0.02	1.69	0.23	0.03	1.84	0.32	0.04	2.35	0.16	0.01	1.66
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	3.38	0.49	23.42	3.48	0.51	23.64	3.48	0.51	23.78	3.23	0.47	22.36	3.57	0.50	25.31
Couple 1991, Single 2001	5.56	0.46	67.42	4.93	0.47	51.87	4.95	0.48	50.88	3.90	0.32	47.95	5.48	0.48	62.15
Single 1991, Couple 2001	5.10	0.43	61.18	5.09	0.45	57.64	5.18	0.46	57.81	4.83	0.43	54.62	4.83	0.40	58.50
Qualifications (ref: none)															
Qualifications	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
No qualifications in 1991, gained by 2001	2.58	0.77	8.61	2.96	0.81	10.88	2.84	0.78	10.35	2.60	0.75	8.95	2.86	0.78	10.51
Household tenure (ref: owner)															
Private renter	0.69	0.05	9.75	0.44	0.03	6.90	0.46	0.03	6.80	0.54	0.04	6.47	0.45	0.03	7.62
Social renter	0.58	0.19	1.81	0.60	0.18	1.95	0.56	0.17	1.84	0.56	0.17	1.88	0.67	0.22	2.06
Migrant generation (ref: UK born)															
Migrant	1.27	0.21	7.70	2.02	0.27	15.32	1.95	0.26	14.86	1.30	0.19	9.06	2.32	0.29	18.33
Internal migrant (ref: non-mover)															
Mover	0.69	0.21	2.27	0.71	0.21	2.33	0.77	0.23	2.55	0.76	0.22	2.59	0.59	0.18	1.94
Deprivation (ref: low)															
Moderate	1.02	0.30	3.53	0.69	0.20	2.39	0.77	0.22	2.62	0.91	0.26	3.22	0.55	0.16	1.93
High	0.46	0.12	1.77	0.24	0.05	1.13	0.28	0.06	1.35	0.47	0.11	2.03	**0.16**	**0.03**	**0.75**
Non-White Concentration (ref: low)															
Moderate				4.73	0.86	26.03									
High				3.55	0.55	22.74									
Herfindahl Index (ref: high)															
Moderate							1.24	0.30	5.20						
Low							0.33	0.05	2.22						
Co-Ethnic Concentration (ref: low)															
Moderate										2.26	0.54	9.50			
High										1.06	0.21	5.45			
Other-Ethnic Concentration (ref: low)															
Moderate													**7.57**	**1.08**	**52.89**
High													7.77	0.92	65.37

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Table 8.24: Multivariate predictors of transitions from low to low or high class among Black Caribbean women between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl			Baseline + co-ethnic			Baseline + other-ethnic		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	0.47	0.07	3.21	0.48	0.07	3.35	0.50	0.07	3.76	0.45	0.07	3.18	0.43	0.06	2.94
40 to 54	0.19	0.02	1.82	0.19	0.02	1.73	0.19	0.02	1.83	0.19	0.02	1.75	0.18	0.02	1.58
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	0.51	0.12	2.19	0.51	0.11	2.31	0.48	0.11	2.13	0.50	0.12	2.14	0.52	0.12	2.24
Couple 1991, Single 2001	0.34	0.03	3.70	0.31	0.03	3.39	0.31	0.03	3.65	0.31	0.03	3.81	0.31	0.03	3.22
Single 1991, Couple 2001	0.44	0.07	2.89	0.41	0.06	2.74	0.39	0.06	2.63	0.43	0.07	2.84	0.43	0.07	2.87
Qualifications (ref: none)															
Qualifications	**44.33**	**2.17**	**906.25**	**46.26**	**2.26**	**946.26**	**48.91**	**2.33**	**1025.78**	**46.61**	**2.25**	**966.39**	**46.47**	**2.29**	**944.31**
No qualifications in 1991, gained by 2001	3.44	0.62	19.07	3.56	0.64	19.78	3.55	0.68	18.63	3.46	0.63	18.93	3.47	0.62	19.29
Household tenure (ref: owner)															
Private renter	1.04	0.08	14.03	0.98	0.07	14.20	1.18	0.07	19.36	0.95	0.07	13.00	0.79	0.06	10.66
Social renter	0.44	0.12	1.63	0.42	0.11	1.57	0.44	0.12	1.63	0.43	0.11	1.66	0.42	0.11	1.57
Migrant generation (ref: UK born)															
Migrant	0.38	0.08	1.78	0.37	0.08	1.70	0.34	0.07	1.66	0.37	0.08	1.75	0.37	0.08	1.67
Internal migrant (ref: non-mover)															
Mover	0.80	0.25	2.56	0.79	0.24	2.67	0.74	0.22	2.55	0.80	0.24	2.61	0.82	0.24	2.76
Deprivation (ref: low)															
Moderate	0.72	0.21	2.55	0.75	0.20	2.72	0.74	0.20	2.72	0.69	0.19	2.51	0.69	0.19	2.49
High	1.20	0.31	4.61	1.24	0.27	5.58	1.23	0.29	5.26	1.16	0.29	4.57	1.10	0.25	4.83
Non-White Concentration (ref: low)															
Moderate				0.98	0.25	3.86									
High				0.99	0.24	4.05									
Herfindahl Index (ref: high)															
Moderate							0.64	0.19	2.15						
Low							0.96	0.24	3.85						
Co-Ethnic Concentration (ref: low)															
Moderate										1.28	0.30	5.39			
High										1.08	0.23	5.00			
Other-Ethnic Concentration (ref: low)															
Moderate													1.67	0.44	6.32
High													1.09	0.28	4.24

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Summary of Study 2

This study has shown that neighbourhood characteristics tended to be associated with upward mobility among White women. Deprivation was negatively associated with the likelihood of being socially mobile. White women in more ethnically diverse, less co-ethnically concentrated neighbourhoods were more likely to achieve upward class mobility. This is generally not the case for Indian or Black Caribbean women. For Indian women, only low to high class mobility was positively associated with living in a less ethnically diverse, less non-White concentrated neighbourhood. Co-ethnic concentration and other non-White ethnic concentration were not significantly associated with social mobility, which suggests that it was the presence of the White population that was important, rather than being surrounded by other Indians. For Black Caribbean women, there was little consistent evidence of a relationship between neighbourhood and upward mobility.

8.4.3 Study 3: Middle to high or low class among men

8.4.3.1 White men

In this study I explore transitions from the middle class in 1991 to either high or low class occupations. Table 8-25 shows descriptive statistics and results from univariate multinomial logit regression models for White men in middle class occupations in 1991. Since the White group dominated the samples used in my earlier analyses, the results in Table 8-25 reflect those which I have already discussed in detail.

Table 8.25: Univariate predictors of transitions from middle to middle, high or low class among White men between 1991 and 2001

	N Middle to Middle	N Middle to High	% Socially Mobile	RRR	95% CIs	p-value	N Middle to Low	% Socially Mobile	RRR	95% CIs	p-value
Age											
18 to 29 (ref)	1,945	2,366	45.5				889	17.1			
30 to 39	2,527	1,586	31.9	0.51	0.47-0.56	<0.001	865	17.4	0.75	0.67-0.84	<0.001
40 to 54	3,289	1,207	21.4	0.30	0.28-0.33	<0.001	1,150	20.4	0.77	0.69-0.86	<0.001
Couple status											
Couple 1991 & 2001 (ref)	4,714	2,505	28.4				1,608	18.2			
Single 1991 & 2001	1,533	1,217	35.9	1.50	1.37-1.65	<0.001	638	18.8	1.22	1.09-1.36	<0.001
Couple 1991, Single 2001	619	395	30.9	1.19	1.04-1.37	0.011	266	20.8	1.26	1.08-1.47	0.004
Single 1991, Couple 2001	895	1,042	44.7	2.18	1.97-2.42	<0.001	392	16.8	1.27	1.11-1.46	<0.001
Qualifications											
No qualifications (ref)	2,092	359	10.7				913	27.1			
Qualifications	496	916	61.5	10.78	9.22-12.59	<0.001	78	5.2	0.36	0.28-0.46	<0.001
No qualifications in 1991, gained by 2001	5,173	3,880	35.4	4.33	3.84-4.89	<0.001	1,910	17.4	0.84	0.77-0.93	<0.001
Household tenure											
Owner (ref)	6,945	4,574	32.9				2,402	17.3			
Private renter	311	310	40.7	1.51	1.28-1.78	<0.001	141	18.5	1.33	1.08-1.64	0.007
Social renter	461	254	23.8	0.84	0.72-0.98	0.031	354	33.1	2.23	1.92-2.58	<0.001
Migrant generation											
UK born (ref)	7,446	4,977	32.7				2,806	18.4			
Migrant	315	182	30.6	0.85	0.71-1.03	0.091	98	16.5	0.84	0.67-1.06	0.134
Internal migrant											
Non-mover (ref)	3,982	1,776	24.8				1,397	19.5			
Mover	3,776	3,379	39.0	2.01	1.87-2.16	<0.001	1,507	17.4	1.13	1.04-1.24	0.005
Standard region 1991											
South East (ref)	3,085	2,192	34.5				1,074	16.9			
North	359	255	34.1	0.99	0.83-1.18	0.894	134	17.9	1.06	0.85-1.34	0.598
Yorkshire	754	444	30.1	0.84	0.74-0.95	0.006	275	18.7	1.04	0.89-1.22	0.605

East Midlands	627	398	31.2	0.90	0.78-1.02	0.107	251	19.7	1.13	0.96-1.33	0.136
East Anglia	346	248	33.9	1.00	0.83-1.20	0.982	138	18.9	1.14	0.93-1.41	0.216
South West	894	561	30.0	0.89	0.79-1.01	0.062	413	22.1	1.31	1.14-1.51	<0.001
West Midlands	732	488	31.5	0.94	0.82-1.07	0.332	330	21.3	1.29	1.11-1.50	0.001
North West	963	573	31.4	0.84	0.7500.94	0.004	289	15.8	0.87	0.74-1.01	0.069
Deprivation											
Low	2611	1780	34.3				803	15.5			
Moderate	2528	1648	31.7	0.96	0.88-1.04	0.315	1017	19.6	1.31	1.17-1.46	<0.001
High	2516	1620	31.3	0.95	0.87-1.03	0.202	1041	20.1	1.35	1.21-1.50	<0.001
Non-White Concentration											
Low	2663	1527	29.4				1000	19.3			
Moderate	2474	1714	33.1	1.21	1.11-1.32	<0.001	998	19.2	1.07	0.97-1.19	0.185
High	2518	1807	34.8	1.25	1.15-1.37	<0.001	863	16.6	0.91	0.82-1.02	0.103
Herfindahl Index											
High	2518	1807	34.8				863	16.6			
Moderate	2476	1714	33.0	0.97	0.88-1.05	0.419	998	19.2	1.18	1.05-1.31	0.004
Low	2661	1527	29.4	0.80	0.73-0.87	<0.001	1000	19.3	1.10	0.98-1.22	0.101

Source: ONS LS, created by the Author

Table 8.26: Multivariate predictors of transitions from middle to middle or high class among White men between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)									
30 to 39	**0.60**	**0.54**	**0.66**	**0.59**	**0.54**	**0.66**	**0.59**	**0.54**	**0.66**
40 to 54	**0.45**	**0.40**	**0.50**	**0.45**	**0.40**	**0.51**	**0.45**	**0.40**	**0.51**
Couple status (ref: couple in 1991 and 2001)									
Single 1991 & 2001	0.94	0.85	1.04	0.94	0.84	1.04	0.94	0.84	1.04
Couple 1991, Single 2001	0.99	0.86	1.15	0.99	0.86	1.15	0.99	0.86	1.15
Single 1991, Couple 2001	1.11	0.98	1.25	1.11	0.98	1.25	1.11	0.98	1.25
Qualifications (ref: none)									
Qualifications	**8.60**	**7.32**	**10.09**	**8.57**	**7.30**	**10.07**	**8.57**	**7.30**	**10.07**
No qualifications in 1991, gained by 2001	**3.19**	**2.82**	**3.62**	**3.18**	**2.81**	**3.61**	**3.18**	**2.81**	**3.61**
Household tenure (ref: owner)									
Private renter	1.05	0.88	1.25	1.05	0.88	1.25	1.05	0.88	1.25
Social renter	0.91	0.76	1.07	0.91	0.77	1.08	0.91	0.77	1.08
Migrant generation (ref: UK born)									
Migrant	0.91	0.74	1.11	0.90	0.74	1.10	0.90	0.74	1.10
Internal migrant (ref: non-mover)									
Mover	**1.40**	**1.28**	**1.52**	**1.40**	**1.28**	**1.52**	**1.40**	**1.28**	**1.52**
Deprivation (ref: low)									
Moderate	0.95	0.87	1.04	0.94	0.86	1.03	0.94	0.86	1.03
High	**0.89**	**0.81**	**0.97**	**0.86**	**0.78**	**0.95**	**0.86**	**0.78**	**0.95**
Non-White Concentration (ref: low)									
Moderate				**1.18**	**1.08**	**1.30**			
High				**1.18**	**1.06**	**1.31**			
Herfindahl Index (ref: high)									
Moderate							1.00	0.91	1.11
Low							**0.85**	**0.76**	**0.94**

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Table 8-26 shows the results of multivariate multinomial logit regression models for White men and the likelihood of moving from middle to high class occupations. The Baseline model showed that men living in more deprived neighbourhoods were significantly less likely to achieve upward mobility, after controlling for individual and household characteristics. In further models, each measure of neighbourhood ethnic composition was also shown to be independently related to upward mobility. White men in more non-White concentrated, ethnically diverse neighbourhoods with low co-ethnic concentration were significantly more likely to experience upward social mobility.

Table 8.27: Multivariate predictors of transitions from middle to middle or low class among White men between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)									
30 to 39	**0.79**	**0.69**	**0.89**	**0.79**	**0.69**	**0.89**	**0.79**	**0.69**	**0.89**
40 to 54	**0.79**	**0.69**	**0.90**	**0.79**	**0.69**	**0.90**	**0.79**	**0.69**	**0.90**
Couple status (ref: couple in 1991 and 2001)									
Single 1991 & 2001	1.06	0.94	1.20	1.08	0.95	1.22	1.08	0.95	1.22
Couple 1991, Single 2001	**1.20**	**1.03**	**1.41**	**1.20**	**1.03**	**1.41**	**1.20**	**1.03**	**1.41**
Single 1991, Couple 2001	1.10	0.95	1.29	1.11	0.96	1.30	1.11	0.96	1.30
Qualifications (ref: none)									
Qualifications	**0.36**	**0.28**	**0.47**	**0.37**	**0.29**	**0.47**	**0.37**	**0.29**	**0.48**
No qualifications in 1991, gained by 2001	**0.81**	**0.73**	**0.89**	**0.80**	**0.72**	**0.89**	**0.80**	**0.72**	**0.89**
Household tenure (ref: owner)									
Private renter	**1.25**	**1.01**	**1.54**	**1.27**	**1.02**	**1.57**	**1.27**	**1.02**	**1.57**
Social renter	**1.98**	**1.70**	**2.31**	**1.98**	**1.70**	**2.30**	**1.98**	**1.70**	**2.30**
Migrant generation (ref: UK born)									
Migrant	0.85	0.67	1.07	0.87	0.69	1.10	0.87	0.69	1.10
Internal migrant (ref: non-mover)									
Mover	1.03	0.93	1.13	1.03	0.93	1.13	1.03	0.93	1.13
Deprivation (ref: low)									
Moderate	**1.25**	**1.11**	**1.39**	**1.28**	**1.14**	**1.43**	**1.28**	**1.14**	**1.43**
High	**1.24**	**1.10**	**1.39**	**1.33**	**1.17**	**1.50**	**1.33**	**1.17**	**1.50**
Non-White Concentration (ref: low)									
Moderate				1.08	0.97	1.21			
High				**0.84**	**0.74**	**0.96**			
Herfindahl Index (ref: high)									
Moderate							**1.29**	**1.14**	**1.45**
Low							**1.19**	**1.04**	**1.35**

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Table 8-27 shows the results of the likelihood of middle to low class transitions among White men in the same model. The Baseline model showed that White men living in more deprived neighbourhoods were significantly more at risk of downward mobility, after controlling for individual and household characteristics. Further models showed significant association between downward mobility and neighbourhood ethnic composition. White men living in more non-White concentrated, more ethnically diverse neighbourhoods with low co-ethnic concentration were at significantly less risk of experiencing downward mobility.

8.4.3.2 Indian men

Table 8-28 shows the descriptive statistics and results of univariate multinomial logit regression models for Indian men in middle class occupations in 1991. Older men were significantly less likely to be socially mobile in either direction. Indian men who were single in 1991 were significantly more likely to be upwardly mobile compared to those who were in a couple in 1991 and 2001. Those with qualifications were more likely to experience middle to high class transitions. Household tenure had no significant association with social mobility. Overseas-born Indian men were significantly less likely to achieve upward mobility compared to those born in the UK. However, place of birth had no influence on the likelihood of experiencing downward mobility. There was no significant regional variation among Indian men, though small numbers made these associations unreliable.

Indian men in more deprived neighbourhoods were not significantly less likely to experience upward mobility, nor more at risk of downward mobility. Those living in more non-White concentrated neighbourhoods were at significant risk of downward mobility. Indian men in less ethnically diverse and less co-ethnically concentrated neighbourhoods were significantly less likely to experience middle to low class transitions. Social mobility was not associated with exposure to other non-White ethnic groups. Tables 8-29 and 8-30 show the results of multivariate multinomial logit regression models. The Baseline model (table 8-29) shows that deprivation was not significantly associated with upward mobility after controlling for individual and household characteristics. Further models also showed that none of the measures of neighbourhood ethnic composition were significantly associated with upward mobility in the fully adjusted models. In comparison, Table 8-30 showed some evidence of neighbourhood effects. The Baseline model reported no significant association between deprivation and downward mobility. However, further models suggested significantly more risk of downward mobility among Indian men living in more non-White concentrated, ethnically diverse and co-ethnically concentrated neighbourhoods. Exposure to other non-White ethnic groups was not related to downward mobility.

Table 8.28: Univariate predictors of transitions from middle to middle, high or low class among Indian men between 1991 and 2001

	N Middle to Middle	N Middle to High	% Socially Mobile	RRR	95% CIs	p-value	N Middle to Low	% Socially Mobile	RRR	95% CIs	p-value
Age											
18 to 29 (ref)	35	51	50.5				15	14.9			
30 to 39	132	45	20.9	0.23	0.14-0.41	<0.001	38	17.7	0.68	0.33-1.38	0.284
40 to 54	111	33	19.9	0.21	0.12-0.37	<0.001	22	13.3	0.46	0.22-0.98	0.044
Couple status											
Couple 1991 & 2001 (ref)	247	93	23.0				65	16.0			
Single 1991 & 2001	BLANKED	11	68.8	5.35	1.76-16.23	0.003	BLANKED	0.0	0.76	0.09-6.60	0.801
Couple 1991, Single 2001	BLANKED	BLANKED	33.3	1.34	0.36-4.99	0.666	BLANKED	0.0	0.57	0.06-4.05	0.494
Single 1991, Couple 2001	18	21	44.7	3.12	1.57-6.19	0.001	BLANKED	17.0	1.68	0.71-4.00	0.240
Qualifications											
No qualifications (ref)	94	11	8.2				29	21.6			
Qualifications	25	33	54.1	12.41	5.11-30.11	<0.001	BLANKED	4.9	0.39	0.11-1.39	0.146
No qualifications in 1991, gained by 2001	159	85	29.6	5.00	2.34-10.70	<0.001	43	15.0	0.88	0.53-1.48	0.634
Household tenure											
Owner (ref)	258	116	26.0				72	16.1			
Private renter	BLANKED	BLANKED	47.4	2.56	0.90-7.22	0.077	BLANKED	15.8	1.53	0.38-6.15	0.550
Social renter	13	BLANKED	18.8	0.52	0.15-1.82	0.304	BLANKED	0.0	-		
Migrant generation											
UK born (ref)	14	20	50.0				BLANKED	15.0			
Migrant	264	109	24.7	0.28	0.13-0.59	0.001	69	15.6	0.57	0.21-1.55	0.269
Internal migrant											
Non-mover (ref)	174	61	21.6				47	16.7			
Mover	103	68	34.2	1.85	1.20-2.85	0.006	28	14.1	1.02	0.58-1.77	0.955
Standard region 1991											
South East (ref)	149	75	27.5				49	17.9			
North	BLANKED	BLANKED	20.0	0.44	0.09-2.09	0.301	BLANKED	20.0			
Yorkshire	18	BLANKED	30.8	0.88	0.38-2.02	0.758	BLANKED				

East Midlands	38	11	20.8	0.52	0.26-1.02	0.057	BLANKED	7.5			
East Anglia	BLANKED	BLANKED					BLANKED				
South West	BLANKED	BLANKED					BLANKED				
West Midlands	46	22	26.2	0.90	0.51-1.60	0.721	16	19.0			
North West	13	10	38.5	1.52	0.65-3.52	0.331	BLANKED	11.5			
Deprivation											
Low	100	37	23.4				21	13.3			
Moderate	84	44	27.5	1.42	0.85-2.37	0.187	32	20.0	1.81	0.98-3.36	0.058
High	87	45	29.2	1.43	0.86-2.38	0.170	22	14.3	1.20	0.60-2.40	0.598
Non-White Concentration											
Low	104	38	24.1				16	10.1			
Moderate	82	50	31.6	1.67	1.01-2.77	0.047	26	16.5	2.06	1.05-4.05	0.036
High	85	38	24.4	1.26	0.74-2.13	0.396	33	21.2	2.52	1.29-4.94	0.007
Herfindahl Index											
High	83	42	26.3				35	21.9			
Moderate	85	47	30.1	1.09	0.66-1.83	0.735	24	15.4	0.67	0.37-1.23	0.194
Low	103	37	23.7	0.73	0.43-1.24	0.240	16	10.3	0.37	0.19-0.72	0.003
Co-Ethnic Concentration											
Low	102	41	25.9				15	9.5			
Moderate	84	46	29.1	1.36	0.82-2.27	0.233	28	17.7	2.27	1.15-4.46	0.018
High	85	39	25.0	1.17	0.70-1.96	0.548	32	20.5	2.56	1.28-5.13	0.008
Other-Ethnic Concentration											
Low	100	39	24.5				20	12.6			
Moderate	89	43	27.4	1.24	0.75-2.04	0.399	25	15.9	1.40	0.74-2.67	0.300
High	82	44	28.2	1.41	0.83-2.38	0.204	30	19.2	1.83	0.96-3.50	0.068

Source: ONS LS, created by the Author

Table 8.29: Multivariate predictors of transitions from middle to middle, high or low class among Indian men between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl			Baseline + co-ethnic			Baseline + other-ethnic		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	**0.35**	**0.17**	**0.71**	**0.35**	**0.17**	**0.71**	**0.36**	**0.18**	**0.73**	**0.36**	**0.18**	**0.72**	**0.35**	**0.17**	**0.72**
40 to 54	**0.33**	**0.16**	**0.69**	**0.32**	**0.15**	**0.68**	**0.33**	**0.16**	**0.69**	**0.33**	**0.16**	**0.69**	**0.33**	**0.16**	**0.69**
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	2.15	0.60	7.62	1.92	0.55	6.70	2.03	0.57	7.22	2.08	0.56	7.68	2.12	0.60	7.52
Couple 1991, Single 2001	1.59	0.41	6.15	1.62	0.40	6.63	1.62	0.41	6.42	1.66	0.43	6.38	1.62	0.40	6.50
Single 1991, Couple 2001	1.27	0.50	3.21	1.24	0.49	3.16	1.26	0.50	3.20	1.27	0.50	3.22	1.28	0.50	3.23
Qualifications (ref: none)															
Qualifications	**9.09**	**3.55**	**23.30**	**9.40**	**3.61**	**24.48**	**9.23**	**3.58**	**23.78**	**9.10**	**3.52**	**23.55**	**9.10**	**3.56**	**23.26**
No qualifications in 1991, gained by 2001	**3.95**	**1.74**	**8.95**	**4.05**	**1.78**	**9.22**	**4.01**	**1.76**	**9.11**	**3.94**	**1.73**	**8.99**	**3.95**	**1.74**	**8.96**
Household tenure (ref: owner)															
Private renter	1.54	0.45	5.33	1.51	0.42	5.35	1.54	0.43	5.45	1.55	0.43	5.53	1.55	0.44	5.38
Social renter	0.49	0.15	1.64	0.46	0.13	1.56	0.48	0.14	1.61	0.46	0.14	1.52	0.49	0.15	1.64
Migrant generation (ref: UK born)															
Migrant	0.83	0.32	2.10	0.83	0.33	2.10	0.82	0.32	2.09	0.83	0.32	2.15	0.82	0.33	2.08
Internal migrant (ref: non-mover)															
Mover	1.22	0.74	1.99	1.21	0.74	1.99	1.23	0.75	2.02	1.21	0.74	1.97	1.22	0.74	2.01
Deprivation (ref: low)															
Moderate	1.40	0.80	2.45	1.42	0.77	2.60	1.35	0.75	2.46	1.41	0.78	2.57	1.38	0.75	2.51
High	1.23	0.67	2.26	1.30	0.63	2.69	1.19	0.57	2.45	1.27	0.65	2.50	1.20	0.60	2.40
Non-White Concentration (ref: low)															
Moderate				1.36	0.76	2.45									
High				0.90	0.43	1.89									
Herfindahl Index (ref: high)															
Moderate							1.18	0.63	2.18						
Low							0.96	0.46	1.99						
Co-Ethnic Concentration (ref: low)															
Moderate										1.20	0.66	2.16			
High										0.94	0.45	1.94			
Other-Ethnic Concentration (ref: low)															
Moderate													1.04	0.58	1.87
High													1.05	0.50	2.21

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Table 8.30: Multivariate predictors of transitions from middle to middle, high or low class among Indian men between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl			Baseline + co-ethnic			Baseline + other-ethnic		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	0.67	0.27	1.63	0.74	0.29	1.88	0.72	0.28	1.82	0.75	0.30	1.88	0.69	0.28	1.72
40 to 54	0.44	0.18	1.10	0.47	0.18	1.22	0.47	0.18	1.23	0.49	0.19	1.24	0.46	0.18	1.16
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	0.65	0.06	7.06	0.58	0.05	6.97	0.58	0.05	6.82	0.76	0.07	8.19	0.64	0.06	7.14
Couple 1991, Single 2001	0.99	0.11	8.94	1.18	0.11	12.91	1.23	0.12	12.88	1.17	0.11	12.36	1.12	0.12	10.30
Single 1991, Couple 2001	1.23	0.46	3.33	1.27	0.47	3.43	1.29	0.48	3.49	1.37	0.50	3.73	1.27	0.47	3.46
Qualifications (ref: none)															
Qualifications	0.32	0.08	1.28	0.31	0.08	1.28	0.31	0.08	1.26	0.30	0.07	1.25	0.32	0.08	1.29
No qualifications in 1991, gained by 2001	0.73	0.41	1.28	0.75	0.42	1.33	0.74	0.42	1.30	0.72	0.41	1.27	0.73	0.41	1.29
Household tenure (ref: owner)															
Private renter	1.69	0.40	7.15	2.07	0.49	8.78	2.10	0.49	8.93	2.05	0.48	8.83	1.76	0.41	7.62
Social renter	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Migrant generation (ref: UK born)															
Migrant	0.71	0.22	2.24	0.67	0.20	2.20	0.67	0.20	2.16	0.73	0.22	2.41	0.69	0.22	2.19
Internal migrant (ref: non-mover)															
Mover	0.97	0.54	1.73	1.05	0.59	1.89	1.05	0.58	1.88	1.05	0.59	1.88	0.99	0.55	1.76
Deprivation (ref: low)															
Moderate	1.63	0.88	3.03	1.12	0.55	2.26	1.13	0.56	2.30	1.32	0.70	2.50	1.45	0.71	2.97
High	1.23	0.60	2.52	0.70	0.30	1.65	0.70	0.30	1.64	0.95	0.44	2.02	1.01	0.43	2.35
Non-White Concentration (ref: low)															
Moderate				2.11	0.91	4.87									
High				**2.63**	**1.08**	**6.41**									
Herfindahl Index (ref: high)															
Moderate							0.68	0.37	1.26						
Low							**0.36**	**0.15**	**0.87**						
Co-Ethnic Concentration (ref: low)															
Moderate										2.10	0.98	4.49			
High										**2.18**	**1.00**	**4.73**			
Other-Ethnic Concentration (ref: low)															
Moderate													1.17	0.54	2.52
High													1.40	0.58	3.36

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Summary of Study 3

This study explored whether neighbourhood characteristics were significant predictors of upward or downward social mobility among men who were in middle class occupations in 1991. I found that deprivation was negatively associated with upward mobility and positively associated with downward mobility for White men. In comparison, social mobility among Indian men was not significantly influenced by neighbourhood deprivation.

For White men, living in more ethnically diverse neighbourhoods was protective against downward social mobility and appeared to increase the likelihood of upward mobility. Indian men did not have significantly higher chances of upward mobility if they also lived in more ethnically diverse neighbourhoods. However, living in more non-White concentrated, ethnically diverse neighbourhoods with a high co-ethnic concentration was significantly associated with an increased risk of downward mobility.

This study therefore shows that deprivation is important for White men, but not Indian men. It has also shown that ethnically diverse neighbourhoods promote upward social mobility among White men, but increase the risk of downward social mobility among Indian men. Therefore, neighbourhood characteristics do not have the same effect on life chances for people of different ethnic groups.

8.4.4 Study 4: Middle to high or low class among women

8.4.4.1 White women

This study explored upward and downward social mobility among women who were in middle class occupations in 1991. Table 8-31 shows the descriptive statistics and results of univariate multinomial logit regression models for White women. As previously indicated, the samples used in my earlier analyses which examined ethnic inequalities were dominated by the White ethnic group. Therefore, the results in Table 8-31 broadly reflect those already reported.

Tables 8-32 and 8-33 show the results of the multivariate multinomial logit regression models. The Baseline model in Table 8-32 shows that after controlling for individual and household characteristics, neighbourhood deprivation was not significantly negatively associated with upward mobility. Further modelling showed significant associations between upward mobility and non-White concentration, ethnic diversity and less co-ethnically concentrated neighbourhoods. Moreover, adding each measure of neighbourhood ethnic composition had the effect of making the deprivation variable significant, in a negative direction which suggests that White women in deprived neighbourhoods were less likely to achieve upward mobility.

Table 8-33 Baseline model shows that White women living in more deprived neighbourhoods were at significantly greater risk of downward social mobility, even after controlling for individual and household characteristics. Further adjustment for neighbourhood ethnic composition did not alter the effect of deprivation on downward social mobility. Women in less ethnically diverse, less non-White concentrated neighbourhoods with higher levels of co-ethnically concentration were at significantly greater risk of downward mobility.

Table 8.31: Univariate predictors of transitions from middle to middle, high or low class among White women between 1991 and 2001

	N Middle to Middle	N Middle to High	% Socially Mobile	RRR	95% CIs	p-value	N Middle to Low	% Socially Mobile	RRR	95% CIs	p-value
Age											
18 to 29 (ref)	3,100	2,772	40.2				1,030	14.9			
30 to 39	2,520	1,746	34.2	0.77	0.71-0.84	<0.001	832	16.3	1.00	0.90-1.11	0.933
40 to 49	2,856	1,324	26.3	0.52	0.48-0.56	<0.001	854	17.0	0.90	0.81-1.00	0.052
Couple status											
Couple 1991 & 2001 (ref)	4,512	2,514	29.6				1,479	17.4			
Single 1991 & 2001	1,928	1,604	39.1	1.49	1.38-1.62	<0.001	570	13.9	0.91	0.81-1.01	0.078
Couple 1991, Single 2001	747	604	37.1	1.45	1.29-1.64	<0.001	276	17.0	1.13	0.97-1.32	0.105
Single 1991, Couple 2001	1,289	1,120	40.0	1.56	1.42-1.71	<0.001	391	14.0	0.91	0.80-1.04	0.162
Qualifications											
No qualifications (ref)	1,095	390	18.9				581	28.1			
Qualifications	393	661	58.5	4.23	3.99-5.61	<0.001	76	6.7	0.37	0.28-0.48	<0.001
No qualifications in 1991, gained by 2001	6,987	4,789	34.6	1.93	1.71-2.17	<0.001	2,057	14.9	0.55	0.50-0.62	<0.001
Household tenure											
Owner (ref)	7,532	5,098	34.2				2,283	15.3			
Private renter	377	350	40.8	1.36	1.18-1.58	<0.001	130	15.2	1.13	0.92-1.39	0.239
Social renter	541	383	31.4	1.04	0.91-1.19	0.562	294	24.1	1.80	1.55-2.09	<0.001
Migrant generation											
UK born (ref)	8,199	5,624	34.2				2,630	16.0			
Migrant	277	218	37.5	1.16	0.97-1.39	0.099	86	14.8	0.98	0.77-1.25	0.876
Internal migrant											
Non-mover (ref)	4,038	2,162	29.1				1,217	16.4			
Mover	4,436	3,677	38.3	1.55	1.44-1.66	<0.001	1,499	15.6	1.12	1.03-1.22	0.011
Standard region 1991											
South East (ref)	3,262	2,338	35.7				955	14.6			
North	485	319	33.9	0.91	0.78-1.06	0.222	138	14.6	0.96	0.78-1.18	0.673
Yorkshire	850	571	33.3	0.93	0.82-1.05	0.249	293	17.1	1.15	0.99-1.34	0.071

East Midlands	706	472	33.3	0.93	0.82-1.06	0.292	241	17.0	1.17	1.00-1.38	0.049
East Anglia	338	212	30.8	0.87	0.72-1.05	0.138	139	20.2	1.40	1.14-1.72	0.001
South West	793	547	33.1	0.96	0.85-1.08	0.466	315	19.0	1.36	1.17-1.58	<0.001
West Midlands	893	546	31.7	0.85	0.76-0.96	0.009	281	16.3	1.08	0.92-1.25	0.357
North West	1,148	837	35.8	1.01	0.91-1.13	0.820	354	15.1	1.05	0.91-1.20	0.525
Deprivation											
Low	2874	1942	34.4				823	14.6			
Moderate	2757	1932	34.5	1.04	0.96-1.13	0.387	911	16.3	1.15	1.04-1.29	0.009
High	2753	1898	33.9	1.02	0.94-1.11	0.632	948	16.9	1.20	1.08-1.34	0.001
Non-White Concentration											
Low	2829	1840	32.8				949	16.9			
Moderate	2803	1908	34.0	1.05	0.96-1.14	0.288	904	16.1	0.96	0.87-1.07	0.464
High	2752	2024	36.1	1.13	1.04-1.23	0.004	829	14.8	0.90	0.81-1.00	0.048
Herfindahl Index											
High	2755	2028	36.1				832	14.8			
Moderate	2804	1909	34.0	0.93	0.85-1.00	0.058	901	16.0	1.06	0.96-1.18	0.251
Low	2825	1835	32.7	0.88	0.81-0.96	0.003	949	16.9	1.11	1.00-1.24	0.050

Source: ONS LS, created by the Author

Table 8.32: Multivariate predictors of transitions from middle to middle or high class among White women between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)									
30 to 39	**0.88**	**0.81**	**0.97**	**0.88**	**0.81**	**0.97**	**0.88**	**0.81**	**0.97**
40 to 49	**0.66**	**0.59**	**0.73**	**0.66**	**0.59**	**0.73**	**0.66**	**0.59**	**0.73**
Couple status (ref: couple in 1991 and 2001)									
Single 1991 & 2001	**1.22**	**1.11**	**1.33**	**1.22**	**1.11**	**1.33**	**1.22**	**1.11**	**1.33**
Couple 1991, Single 2001	**1.32**	**1.16**	**1.49**	**1.32**	**1.16**	**1.49**	**1.32**	**1.16**	**1.49**
Single 1991, Couple 2001	**1.15**	**1.03**	**1.28**	**1.15**	**1.03**	**1.28**	**1.15**	**1.03**	**1.28**
Qualifications (ref: none)									
Qualifications	**3.79**	**3.18**	**4.52**	**3.78**	**3.17**	**4.51**	**3.78**	**3.17**	**4.51**
No qualifications in 1991, gained by 2001	**1.52**	**1.34**	**1.73**	**1.53**	**1.35**	**1.74**	**1.53**	**1.35**	**1.74**
Household tenure (ref: owner)									
Private renter	1.02	0.88	1.19	1.02	0.87	1.19	1.02	0.87	1.19
Social renter	1.00	0.86	1.15	1.00	0.86	1.15	1.00	0.86	1.15
Migrant generation (ref: UK born)									
Migrant	1.07	0.89	1.29	1.07	0.89	1.28	1.07	0.89	1.28
Internal migrant (ref: non-mover)									
Mover	**1.24**	**1.15**	**1.34**	**1.24**	**1.15**	**1.34**	**1.24**	**1.15**	**1.34**
Deprivation (ref: low)									
Moderate	1.00	0.92	1.09	0.99	0.91	1.08	0.99	0.91	1.08
High	0.93	0.85	1.02	**0.90**	**0.83**	**0.99**	**0.90**	**0.83**	**0.99**
Non-White Concentration (ref: low)									
Moderate				1.05	0.96	1.15			
High				**1.10**	**1.00**	**1.22**			
Herfindahl Index (ref: high)									
Moderate							0.95	0.87	1.04
Low							**0.90**	**0.82**	**1.00**

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Table 8.33: Multivariate predictors of transitions from middle to middle or low class among White women between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)									
30 to 39	**0.87**	**0.77**	**0.98**	**0.87**	**0.77**	**0.98**	**0.87**	**0.77**	**0.98**
40 to 49	**0.72**	**0.63**	**0.82**	**0.72**	**0.63**	**0.82**	**0.72**	**0.63**	**0.82**
Couple status (ref: couple in 1991 and 2001)									
Single 1991 & 2001	**0.78**	**0.69**	**0.89**	**0.79**	**0.70**	**0.89**	**0.79**	**0.70**	**0.89**
Couple 1991, Single 2001	1.05	0.90	1.22	1.05	0.90	1.22	1.05	0.90	1.22
Single 1991, Couple 2001	**0.77**	**0.66**	**0.89**	**0.77**	**0.66**	**0.89**	**0.77**	**0.66**	**0.89**
Qualifications (ref: none)									
Qualifications	**0.34**	**0.26**	**0.45**	**0.35**	**0.26**	**0.45**	**0.35**	**0.26**	**0.45**
No qualifications in 1991, gained by 2001	**0.51**	**0.45**	**0.57**	**0.51**	**0.45**	**0.57**	**0.51**	**0.45**	**0.57**
Household tenure (ref: owner)									
Private renter	1.14	0.93	1.41	1.15	0.93	1.42	1.15	0.93	1.42
Social renter	**1.76**	**1.50**	**2.07**	**1.77**	**1.51**	**2.07**	**1.77**	**1.51**	**2.07**
Migrant generation (ref: UK born)									
Migrant	1.06	0.83	1.37	1.07	0.83	1.38	1.07	0.83	1.38
Internal migrant (ref: non-mover)									
Mover	**1.14**	**1.03**	**1.25**	**1.13**	**1.03**	**1.25**	**1.13**	**1.03**	**1.25**
Deprivation (ref: low)									
Moderate	**1.12**	**1.01**	**1.25**	**1.15**	**1.03**	**1.28**	**1.14**	**1.02**	**1.28**
High	**1.12**	**1.00**	**1.26**	**1.18**	**1.05**	**1.33**	**1.18**	**1.05**	**1.33**
Non-White Concentration (ref: low)									
Moderate				0.96	0.86	1.08			
High				**0.86**	**0.75**	**0.97**			
Herfindahl Index (ref: high)									
Moderate							1.12	1.00	1.26
Low							**1.17**	**1.03**	**1.32**

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

8.4.4.2 Indian women

Table 8-34 shows the descriptive statistics and results of univariate multinomial logit regression models for Indian women in middle class occupations in 1991. Older Indian women were significantly less likely to be upwardly or downwardly mobile. Those who were single in 1991 were significantly more likely to achieve upward social mobility compared to those in a couple. Couple status had no significant influence upon downward mobility. Indian women with qualifications were significantly more likely to achieve upward mobility.

Household tenure made no difference to the chances of upward or downward social mobility for Indian women. Women born overseas were significantly less likely to achieve upward mobility compared to the UK born. Place of birth had no significant influence on the likelihood of downward mobility. Indian women who moved between 1991 and 2001 were significantly more likely to be socially mobile, both upward and downward. Region of residence, neighbourhood deprivation and ethnic composition had no consistently significant effect on social mobility.

Tables 8-35 and 8-36 show the results of multivariate multinomial logit regression models for Indian women. In line with the univariate results, neighbourhood deprivation and ethnic composition had no significant effect on upward or downward social mobility for Indian women in middle class occupations in 1991.

Table 8.34: Univariate predictors of transitions from middle to middle, high or low class among Indian women between 1991 and 2001

	N Middle to Middle	N Middle to High	% Socially Mobile	RRR	95% CIs	p-value	N Middle to Low	% Socially Mobile	RRR	95% CIs	p-value
Age											
18 to 29 (ref)	68	52	36.6				22	15.5			
30 to 39	98	35	22.6	0.45	0.26-0.76	0.003	22	14.2	0.66	0.34-1.30	0.234
40 to 49	52	10	14.5	0.22	0.10-0.49	<0.001	BLANKED	10.1	0.40	0.16-1.01	0.053
Couple status											
Couple 1991 & 2001 (ref)	167	57	22.0				35	13.5			
Single 1991 & 2001	17	13	37.1	2.27	1.03-5.00	0.042	BLANKED	14.3	1.40	0.48-4.06	0.542
Couple 1991, Single 2001	18	BLANKED	17.9	0.87	0.31-2.48	0.797	BLANKED	17.9	1.40	0.49-4.01	0.536
Single 1991, Couple 2001	16	22	50.0	4.35	2.11-8.95	<0.001	BLANKED	13.6	1.90	0.70-5.18	0.211
Qualifications											
No qualifications (ref)	32	BLANKED	12.0				12	24.0			
Qualifications	15	13	41.9	4.62	1.48-14.48	0.009	BLANKED	9.7	0.36	0.07-1.80	0.211
No qualifications in 1991, gained by 2001	171	78	27.3	2.44	0.97-6.15	0.058	37	12.9	0.59	0.27-1.27	0.174
Household tenure											
Owner (ref)	200	88	26.5				44	13.3			
Private renter	BLANKED	BLANKED	21.4	0.64	0.13-3.16	0.587	BLANKED	21.4	1.93	0.48-7.75	0.355
Social renter	10	BLANKED	30.0	1.35	0.47-3.87	0.576	BLANKED	20.0	1.80	0.54-5.95	0.335
Migrant generation											
UK born (ref)	29	29	42.0				11	15.9			
Migrant	189	68	22.9	0.36	0.20-0.65	0.001	40	13.5	0.57	0.25-1.28	0.171
Internal migrant											
Non-mover (ref)	133	44	22.9				15	7.8			
Mover	84	53	30.6	1.98	1.23-3.20	0.005	36	20.8	3.86	1.98-7.53	<0.001
Standard region 1991											
South East (ref)	129	53	25.4				27	12.9			
North	BLANKED	BLANKED	0.0				BLANKED	0.0			
Yorkshire	BLANKED	BLANKED	25.0	1.09	0.32-3.69	0.895	BLANKED	18.8	1.57	0.40-6.17	0.520

East Midlands	29	13	26.5	1.10	0.52-2.31	0.812	BLANKED	14.3	1.14	0.45-2.88	0.789
East Anglia	BLANKED	BLANKED	0.0				BLANKED	0.0			
South West	BLANKED	BLANKED	0.0				BLANKED	0.0			
West Midlands	28	20	32.3	1.75	0.90-3.38	0.100	14	22.6	2.35	1.08-5.12	0.031
North West	12	BLANKED	29.4	1.11	0.39-3.15	0.844	BLANKED	0.0			
Deprivation											
Low	75	29	24.2				16	13.3			
Moderate	76	27	22.3	0.92	0.51-1.67	0.781	18	14.9	1.11	0.53-2.31	0.780
High	63	38	32.2	1.60	0.88-2.90	0.121	17	14.4	1.27	0.59-2.70	0.543
Non-White Concentration											
Low	73	31	25.8				16	13.3			
Moderate	75	27	22.5	0.85	0.46-1.56	0.597	18	15.0	1.10	0.53-2.25	0.805
High	66	36	30.3	1.32	0.74-2.37	0.352	17	14.3	1.18	0.54-2.57	0.686
Herfindahl Index											
High	66	37	30.8				17	14.2			
Moderate	75	27	22.5	0.64	0.36-1.16	0.143	18	15.0	0.93	0.44-1.96	0.852
Low	73	30	25.2	0.76	0.42-1.37	0.358	16	13.4	0.85	0.39-1.86	0.686
Co-Ethnic Concentration											
Low	76	28	23.3				16	13.3			
Moderate	71	32	26.7	1.22	0.66-2.26	0.518	17	14.2	1.14	0.54-2.39	0.734
High	67	34	28.6	1.42	0.79-2.54	0.240	18	15.1	1.28	0.60-2.72	0.528
Other-Ethnic Concentration											
Low	71	32	26.7				17	14.2			
Moderate	76	25	20.8	0.73	0.39-1.35	0.318	19	15.8	1.04	0.51-2.14	0.906
High	67	37	31.1	1.26	0.71-2.23	0.431	15	12.6	0.94	0.43-2.04	0.866

Source: ONS LS, created by the Author

Table 8.35: Multivariate predictors of transitions from middle to middle or high class among Indian women between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl			Baseline + co-ethnic			Baseline + other-ethnic		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	0.75	0.37	1.51	0.73	0.36	1.50	0.73	0.36	1.51	0.74	0.36	1.51	0.77	0.38	1.56
40 to 49	0.38	0.14	1.02	**0.36**	**0.14**	**0.94**	**0.36**	**0.14**	**0.94**	**0.38**	**0.14**	**1.01**	**0.38**	**0.14**	**1.01**
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	1.67	0.70	4.00	1.79	0.75	4.29	1.79	0.75	4.28	1.67	0.69	4.04	1.87	0.77	4.57
Couple 1991, Single 2001	0.97	0.33	2.88	1.01	0.34	3.02	1.01	0.34	3.03	0.97	0.32	2.91	1.13	0.36	3.51
Single 1991, Couple 2001	2.44	0.98	6.09	2.48	0.96	6.40	2.47	0.95	6.40	2.40	0.95	6.04	**2.77**	**1.13**	**6.78**
Qualifications (ref: none)															
Qualifications	2.72	0.78	9.51	2.79	0.78	9.98	2.77	0.77	9.92	2.71	0.76	9.68	3.18	0.87	11.56
No qualifications in 1991, gained by 2001	1.58	0.59	4.26	1.59	0.59	4.29	1.59	0.59	4.30	1.58	0.59	4.25	1.68	0.62	4.57
Household tenure (ref: owner)															
Private renter	1.04	0.18	6.14	0.86	0.15	4.93	0.86	0.15	4.91	1.04	0.18	6.09	0.96	0.17	5.37
Social renter	1.02	0.27	3.94	1.03	0.26	4.07	1.04	0.26	4.16	1.01	0.26	3.91	0.98	0.26	3.71
Migrant generation (ref: UK born)															
Migrant	0.77	0.33	1.76	0.77	0.33	1.79	0.77	0.33	1.78	0.77	0.33	1.77	0.81	0.35	1.86
Internal migrant (ref: non-mover)															
Mover	1.09	0.60	2.00	1.07	0.58	1.98	1.07	0.58	1.97	1.09	0.59	2.01	1.07	0.59	1.94
Deprivation (ref: low)															
Moderate	0.74	0.39	1.41	0.86	0.39	1.88	0.85	0.39	1.87	0.72	0.36	1.46	0.83	0.38	1.80
High	1.12	0.54	2.30	1.31	0.52	3.27	1.31	0.53	3.22	1.10	0.53	2.30	1.21	0.47	3.13
Non-White Concentration (ref: low)															
Moderate				0.55	0.25	1.22									
High				0.76	0.30	1.94									
Herfindahl Index (ref: high)															
Moderate							0.72	0.37	1.40						
Low							1.30	0.51	3.34						
Co-Ethnic Concentration (ref: low)															
Moderate										0.93	0.46	1.90			
High										1.05	0.48	2.26			
Other-Ethnic Concentration (ref: low)															
Moderate													0.49	0.23	1.07
High													0.78	0.31	2.00

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Table 8.36: Multivariate predictors of transitions from middle to middle or low class among Indian women between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl			Baseline + co-ethnic			Baseline + other-ethnic		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	0.90	0.40	2.06	0.91	0.40	2.05	0.91	0.40	2.05	0.92	0.40	2.11	0.91	0.40	2.08
40 to 49	0.55	0.17	1.85	0.56	0.17	1.91	0.56	0.17	1.89	0.57	0.17	1.93	0.56	0.17	1.85
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	1.17	0.37	3.68	1.12	0.36	3.47	1.12	0.36	3.45	1.12	0.36	3.48	1.14	0.36	3.57
Couple 1991, Single 2001	1.55	0.57	4.23	1.54	0.57	4.21	1.54	0.57	4.21	1.53	0.56	4.15	1.47	0.53	4.03
Single 1991, Couple 2001	1.22	0.42	3.57	1.14	0.39	3.32	1.14	0.39	3.31	1.16	0.41	3.32	1.10	0.36	3.36
Qualifications (ref: none)															
Qualifications	0.23	0.03	1.53	0.23	0.03	1.51	0.23	0.03	1.50	0.23	0.03	1.49	0.22	0.03	1.48
No qualifications in 1991, gained by 2001	0.45	0.18	1.09	0.45	0.18	1.09	0.45	0.18	1.09	0.45	0.19	1.10	0.43	0.18	1.04
Household tenure (ref: owner)															
Private renter	2.26	0.44	11.65	2.36	0.44	12.58	2.36	0.44	12.56	2.40	0.46	12.62	2.21	0.43	11.43
Social renter	2.29	0.59	8.92	2.43	0.62	9.48	2.47	0.64	9.55	2.49	0.60	10.26	2.25	0.58	8.68
Migrant generation (ref: UK born)															
Migrant	0.96	0.39	2.37	1.00	0.40	2.47	1.00	0.40	2.47	0.97	0.40	2.39	0.93	0.38	2.25
Internal migrant (ref: non-mover)															
Mover	**3.43**	**1.66**	**7.08**	**3.64**	**1.74**	**7.64**	**3.63**	**1.74**	**7.60**	**3.59**	**1.71**	**7.56**	**3.49**	**1.67**	**7.31**
Deprivation (ref: low)															
Moderate	1.07	0.50	2.28	0.94	0.43	2.04	0.94	0.43	2.05	0.96	0.43	2.13	1.10	0.50	2.44
High	0.73	0.31	1.73	0.59	0.22	1.56	0.59	0.22	1.56	0.64	0.26	1.57	0.80	0.27	2.36
Non-White Concentration (ref: low)															
Moderate				1.21	0.54	2.71									
High				1.44	0.54	3.86									
Herfindahl Index (ref: high)															
Moderate							0.83	0.36	1.90						
Low							0.69	0.26	1.86						
Co-Ethnic Concentration (ref: low)															
Moderate										1.15	0.49	2.68			
High										1.40	0.56	3.52			
Other-Ethnic Concentration (ref: low)															
Moderate													1.16	0.51	2.66
High													0.87	0.29	2.63

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

8.4.4.3 Black Caribbean women

Table 8-37 shows the descriptive statistics and univariate multinomial logit regression models for Black Caribbean women in middle class occupations in 1991. Older Black Caribbean women were significantly at higher risk of downward social mobility. Couple status had no significant effect on social mobility. Black Caribbean women who gained qualifications between 1991 and 2001 were significantly less likely to experience downward social mobility compared to those with no qualifications. Household tenure, migrant generation and internal migration status were not associated with upward or downward social mobility. Social mobility was not influenced by the region of residence, or any of the neighbourhood characteristics.

Table 8-38 and 8-39 show the results of multivariate multinomial logit regression models for Black Caribbean women in middle class occupations in 1991. After controlling for individual and household characteristics, there remained no associations between neighbourhood characteristics and social mobility. Women in areas with a moderate level of same-ethnic concentration were more likely to experience downward mobility.

Table 8.37: Univariate predictors of transitions from middle to middle, high or low class among Black Caribbean women between 1991 and 2001

	N Middle to Middle	N Middle to High	% Socially Mobile	RRR	95% CIs	p-value	N Middle to Low	% Socially Mobile	RRR	95% CIs	p-value
Age											
18 to 29 (ref)	50	55	48.2				BLANKED	7.9			
30 to 39	39	22	31.4	0.52	0.27-1.01	0.054	BLANKED	12.9	1.28	0.47-3.53	0.631
40 to 49	BLANKED	BLANKED	33.3	0.93	0.34-2.53	0.881	BLANKED	33.3	5.56	1.78-17.35	0.003
Couple status											
Couple 1991 & 2001 (ref)	17	15	36.6				BLANKED	22.0			
Single 1991 & 2001	56	61	46.9	1.21	0.55-2.67	0.629	13	10.0	0.44	0.17-1.13	0.089
Couple 1991, Single 2001	BLANKED	BLANKED	43.8	1.32	0.36-4.88	0.675	BLANKED	18.8	0.63	0.11-3.67	0.607
Single 1991, Couple 2001	19	BLANKED	12.0				BLANKED	12.0			
Qualifications											
No qualifications (ref)	BLANKED	BLANKED	30.0				BLANKED	40.0			
Qualifications	BLANKED	BLANKED	62.5	3.75	0.33-42.77	0.287	BLANKED	0.0	0.38	0.02-6.40	0.498
No qualifications in 1991, gained by 2001	93	79	40.7	1.26	0.21-7.66	0.803	22	11.3	0.18	0.04-0.87	0.033
Household tenure											
Owner (ref)	60	64	46.0				15	10.8			
Private renter	BLANKED	BLANKED	42.9	0.48	0.08-2.71	0.403	BLANKED	0.0			
Social renter	34	20	30.3	0.56	0.29-1.10	0.093	12	18.2	1.41	0.62-3.22	0.413
Migrant generation											
UK born (ref)	62	62	45.6				12	8.8			
Migrant	36	24	32.0	0.68	0.36-1.28	0.229	15	20.0	2.15	0.92-5.05	0.078
Internal migrant											
Non-mover (ref)	44	33	35.9				15	16.3			
Mover	54	53	44.5	1.28	0.69-2.38	0.428	12	10.1	0.65	0.28-1.52	0.320
Standard region 1991											
South East (ref)	70	63	41.2				20	13.1			
North	BLANKED	BLANKED					BLANKED				
Yorkshire	BLANKED	BLANKED	33.3	0.38	0.07-2.07	0.261	BLANKED				

East Midlands	BLANKED	BLANKED	50.0	1.13	0.31-4.10	0.854	BLANKED				
East Anglia	BLANKED	BLANKED					BLANKED				
South West	BLANKED	BLANKED	50.0	2.26	0.54-9.44	0.265	BLANKED	50.0	10.49	1.03-106.55	0.047
West Midlands	10	12	48.0	1.36	0.58-3.15	0.481	BLANKED	12.0	1.05	0.25-4.40	0.947
North West	BLANKED	BLANKED					BLANKED				
Deprivation											
Low	34	27	38.6				BLANKED	12.9			
Moderate	33	27	38.6	1.03	0.50-2.14	0.936	10	14.3	1.15	0.43-3.07	0.788
High	31	32	45.1	1.26	0.62-2.56	0.525	BLANKED	11.3	0.98	0.35-2.74	0.962
Non-White Concentration											
Low	34	28	40.0				BLANKED	11.4			
Moderate	31	27	38.6	1.06	0.52-2.17	0.879	12	17.1	1.66	0.59-4.59	0.342
High	33	31	43.7	1.10	0.55-2.22	0.782	BLANKED	9.9	0.90	0.31-2.59	0.847
Herfindahl Index											
High	33	30	42.9				BLANKED	10.0			
Moderate	31	27	38.6	0.96	0.47-1.97	0.907	12	17.1	1.83	0.68-4.90	0.233
Low	34	29	40.8	0.91	0.45-1.83	0.782	BLANKED	11.3	1.11	0.39-3.19	0.847
Co-Ethnic Concentration											
Low	36	30	42.3				BLANKED	7.0			
Moderate	29	26	37.7	1.08	0.52-2.22	0.843	14	20.3	3.48	1.12-10.75	0.031
High	33	30	42.3	1.06	0.53-2.12	0.881	BLANKED	11.3	1.75	0.54-5.69	0.356
Other-Ethnic Concentration											
Low	32	28	40.0				10	14.3			
Moderate	33	28	40.0	0.97	0.48-1.97	0.932	BLANKED	12.9	0.87	0.31-2.43	0.794
High	33	30	42.3	1.00	0.49-2.05	0.991	BLANKED	11.3	0.78	0.29-2.10	0.617

Source: ONS LS, created by the Author

Table 8.38: Multivariate predictors of transitions from middle to middle or high class among Black Caribbean women between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl			Baseline + co-ethnic			Baseline + other-ethnic		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	**0.39**	**0.15**	**1.00**	**0.32**	**0.11**	**0.91**	**0.32**	**0.11**	**0.91**	**0.37**	**0.14**	**1.01**	**0.38**	**0.14**	**1.00**
40 to 49	0.75	0.18	3.12	0.59	0.13	2.63	0.59	0.13	2.63	0.73	0.17	3.08	0.72	0.17	3.02
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	0.77	0.31	1.90	0.67	0.26	1.68	0.67	0.26	1.68	0.71	0.29	1.76	0.72	0.29	1.79
Couple 1991, Single 2001	1.21	0.31	4.78	0.98	0.21	4.48	0.98	0.21	4.48	1.14	0.29	4.45	1.03	0.24	4.36
Single 1991, Couple 2001	**0.09**	**0.02**	**0.51**	**0.06**	**0.01**	**0.37**	**0.06**	**0.01**	**0.37**	**0.08**	**0.01**	**0.45**	**0.08**	**0.01**	**0.49**
Qualifications (ref: none)															
Qualifications	4.45	0.24	81.54	3.66	0.20	65.83	3.66	0.20	65.83	3.74	0.20	68.68	4.47	0.23	86.88
No qualifications in 1991, gained by 2001	1.14	0.14	9.03	0.97	0.12	7.76	0.97	0.12	7.76	1.08	0.14	8.29	1.13	0.14	9.35
Household tenure (ref: owner)															
Private renter	0.20	0.03	1.26	**0.15**	**0.02**	**0.97**	**0.15**	**0.02**	**0.97**	0.17	0.02	1.22	0.20	0.03	1.16
Social renter	**0.41**	**0.18**	**0.95**	**0.39**	**0.17**	**0.90**	**0.39**	**0.17**	**0.90**	**0.40**	**0.17**	**0.93**	**0.39**	**0.17**	**0.91**
Migrant generation (ref: UK born)															
Migrant	0.84	0.31	2.27	0.94	0.34	2.59	0.94	0.34	2.59	0.85	0.31	2.35	0.89	0.32	2.46
Internal migrant (ref: non-mover)															
Mover	1.96	0.92	4.19	2.08	0.96	4.52	2.08	0.96	4.52	2.06	0.96	4.40	2.05	0.94	4.45
Deprivation (ref: low)															
Moderate	1.27	0.54	2.95	1.27	0.50	3.19	1.27	0.50	3.19	1.56	0.64	3.82	1.34	0.54	3.33
High	1.74	0.72	4.19	2.78	0.83	9.27	2.78	0.83	9.27	2.72	0.89	8.34	2.16	0.70	6.71
Non-White Concentration (ref: low)															
Moderate				1.26	0.49	3.19									
High				0.52	0.16	1.63									
Herfindahl Index (ref: high)															
Moderate							2.42	0.81	7.27						
Low							1.93	0.61	6.07						
Co-Ethnic Concentration (ref: low)															
Moderate										0.75	0.31	1.81			
High										0.54	0.19	1.49			
Other-Ethnic Concentration (ref: low)															
Moderate													0.93	0.36	2.40
High													0.65	0.22	1.89

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Table 8.39: Multivariate predictors of transitions from middle to middle or low class among Black Caribbean women between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl			Baseline + co-ethnic			Baseline + other-ethnic		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	0.96	0.19	4.80	0.74	0.15	3.76	0.74	0.15	3.76	0.77	0.15	3.81	0.92	0.17	4.83
40 to 49	3.53	0.52	23.74	2.55	0.37	17.49	2.55	0.37	17.49	2.31	0.31	17.26	3.39	0.49	23.52
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	0.29	0.07	1.24	0.25	0.06	1.09	0.25	0.06	1.09	**0.24**	**0.06**	**0.95**	0.27	0.06	1.20
Couple 1991, Single 2001	0.25	0.03	2.20	0.24	0.03	2.20	0.24	0.03	2.20	0.23	0.02	2.33	0.22	0.03	1.86
Single 1991, Couple 2001	0.32	0.07	1.52	0.23	0.04	1.19	0.23	0.04	1.19	0.27	0.06	1.35	0.28	0.05	1.44
Qualifications (ref: none)															
Qualifications	0.62	0.01	25.96	0.59	0.01	27.93	0.59	0.01	27.93	0.76	0.02	25.68	0.60	0.01	30.92
No qualifications in 1991, gained by 2001	0.26	0.05	1.45	0.23	0.04	1.45	0.23	0.04	1.45	0.20	0.03	1.28	0.27	0.05	1.57
Household tenure (ref: owner)															
Private renter	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Social renter	**4.07**	**1.04**	**15.94**	3.84	0.89	16.57	3.84	0.89	16.57	**4.38**	**1.10**	**17.36**	3.71	0.82	16.69
Migrant generation (ref: UK born)															
Migrant	1.69	0.39	7.35	1.92	0.44	8.38	1.92	0.44	8.38	1.92	0.45	8.27	1.85	0.42	8.22
Internal migrant (ref: non-mover)															
Mover	1.27	0.48	3.33	1.35	0.52	3.54	1.35	0.52	3.54	1.33	0.50	3.55	1.35	0.51	3.58
Deprivation (ref: low)															
Moderate	0.97	0.26	3.62	0.91	0.27	3.14	0.91	0.27	3.14	0.57	0.13	2.44	1.01	0.28	3.65
High	0.50	0.12	2.18	0.67	0.11	4.29	0.67	0.11	4.29	0.31	0.05	2.07	0.65	0.11	3.76
Non-White Concentration (ref: low)															
Moderate				1.60	0.45	5.77									
High				0.67	0.14	3.27									
Herfindahl Index (ref: high)															
Moderate							2.40	0.66	8.75						
Low							1.50	0.31	7.33						
Co-Ethnic Concentration (ref: low)															
Moderate										**4.54**	**1.01**	**20.37**			
High										2.35	0.39	14.20			
Other-Ethnic Concentration (ref: low)															
Moderate													0.92	0.23	3.72
High													0.60	0.14	2.67

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Summary of study 4

This study has investigated whether neighbourhood deprivation and ethnic composition affected the likelihood of upward and downward social mobility among women in middle class occupations in 1991. Neighbourhood characteristics were significantly associated with social mobility among White women. Among White women, those in less deprived, least White concentrated and the most ethnically diverse neighbourhoods were significantly more likely to move from Middle to High social class occupations. White women in deprived, White concentrated, less ethnically diverse neighbourhoods were significantly more likely to move from Middle to Low class occupations. None of the neighbourhood characteristics were significantly associated with upward or downward social mobility for Indian and Black Caribbean women.

8.4.5 Study 5: High to middle or low class among men

8.4.5.1 White men

In this study, I investigate whether neighbourhood deprivation and ethnic composition affect the likelihood of downward social mobility among men in high class occupations in 1991. Table 8-40 shows the descriptive statistics and univariate multinomial logit regression models among White men. As the White group were the by far the largest within my earlier analyses, it is not surprising that the descriptive and model results are broadly in line with those already reported.

Table 8.40: Univariate predictors of transitions from high to high, middle or low class among White men between 1991 and 2001

	N High to High	N High to Middle	% Socially Mobile	RRR	95% CIs	p-value	N High to Low	% Socially Mobile	RRR	95% CIs	p-value
Age											
18 to 29 (ref)	5,006	624	10.0				613	9.8			
30 to 39	6,933	797	9.5	0.92	0.83-1.03	0.169	645	7.7	0.75	0.67-0.84	<0.001
40 to 54	6,908	1,252	13.5	1.45	1.31-1.61	<0.001	1,118	12.1	1.31	1.18-1.46	<0.001
Couple status											
Couple 1991 & 2001 (ref)	11,615	1,592	10.9				1,456	9.9			
Single 1991 & 2001	3,065	510	12.8	1.21	1.08-1.35	0.001	410	10.3	1.08	0.96-1.21	0.222
Couple 1991, Single 2001	1,342	220	12.3	1.20	1.03-1.40	0.022	227	12.7	1.35	1.16-1.57	<0.001
Single 1991, Couple 2001	2,825	351	10.1	0.90	0.80-1.03	0.120	283	8.2	0.81	0.71-0.92	0.002
Qualifications											
No qualifications (ref)	896	321	18.3				533	30.5			
Qualifications	9,958	731	6.6	0.21	0.18-0.24	<0.001	410	3.7	0.07	0.06-0.08	<0.001
No qualifications in 1991, gained by 2001	7,984	1,614	14.6	0.57	0.49-0.65	<0.001	1,425	12.9	0.31	0.27-0.35	<0.001
Household tenure											
Owner (ref)	17,225	2,446	11.3				2,042	9.4			
Private renter	1,078	125	9.6	0.84	0.69-1.01	0.068	103	7.9	0.81	0.65-1.00	0.048
Social renter	458	87	11.4	1.31	1.03-1.66	0.030	215	28.3	4.04	3.39-4.81	<0.001
Migrant generation											
UK born (ref)	18,018	2,546	11.1				2,302	10.1			
Migrant	829	127	12.3	1.09	0.89-1.32	0.405	74	7.2	0.70	0.55-0.90	0.005
Internal migrant											
Non-mover (ref)	7,879	1,203	11.7				1,197	11.6			
Mover	10,959	1,470	10.8	0.87	0.80-0.94	0.001	1,178	8.7	0.71	0.65-0.77	<0.001
Standard region 1991											
South East (ref)	8,324	1,163	11.3				848	8.2			
North	850	116	10.5	0.97	0.78-1.20	0.753	134	12.2	1.54	1.27-1.88	<0.001
Yorkshire	1,614	222	10.7	0.97	0.83-1.13	0.735	240	11.6	1.46	1.23-1.74	<0.001

East Midlands	1,542	239	12.0	1.11	0.95-1.30	0.180	219	11.0	1.41	1.19-1.66	<0.001
East Anglia	757	103	10.7	0.96	0.78-1.19	0.701	105	10.9	1.35	1.07-1.70	0.010
South West	1,627	265	12.5	1.15	0.99-1.33	0.076	233	11.0	1.40	1.19-1.64	<0.001
West Midlands	1,889	241	10.0	0.91	0.78-1.06	0.216	288	11.9	1.51	1.30-1.76	<0.001
North West	2,244	324	11.3	1.04	0.91-1.19	0.594	308	10.7	1.36	1.117-1.58	<0.001
Deprivation											
Low	6330	875	11.2				626	8.0			
Moderate	6173	858	11.0	1.01	0.91-1.11	0.916	777	10.0	1.27	1.13-1.43	<0.001
High	5980	883	11.3	1.07	0.97-1.18	0.205	935	12.0	1.58	1.41-1.77	<0.001
Non-White Concentration											
Low	6085	898	11.5				837	10.7			
Moderate	6153	856	11.0	0.95	0.85-1.05	0.299	800	10.2	0.95	0.85-1.05	0.309
High	6245	866	11.1	0.94	0.85-1.05	0.270	701	9.0	0.82	0.73-0.91	<0.001
Herfindahl Index											
High	6247	866	11.1				702	9.0			
Moderate	6154	856	11.0	1.00	0.91-1.11	0.948	801	10.3	1.16	1.03-1.30	0.012
Low	6082	894	11.4	1.06	0.96-1.18	0.263	835	10.7	1.22	1.09-1.37	0.001

Source: ONS LS, created by the Author

Table 8.41: Multivariate predictors of transitions from high to high or middle class among White men between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + Herfindahl		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)									
30 to 39	1.06	0.94	1.20	1.06	0.94	1.20	1.06	0.94	1.20
40 to 54	**1.65**	**1.44**	**1.88**	**1.65**	**1.44**	**1.88**	**1.65**	**1.44**	**1.88**
Couple status (ref: couple in 1991 and 2001)									
Single 1991 & 2001	**1.43**	**1.27**	**1.62**	**1.43**	**1.27**	**1.62**	**1.43**	**1.27**	**1.62**
Couple 1991, Single 2001	**1.19**	**1.02**	**1.41**	**1.19**	**1.02**	**1.40**	**1.19**	**1.02**	**1.40**
Single 1991, Couple 2001	**1.18**	**1.02**	**1.37**	**1.18**	**1.02**	**1.37**	**1.18**	**1.02**	**1.37**
Qualifications (ref: none)									
Qualifications	**0.23**	**0.19**	**0.26**	**0.23**	**0.19**	**0.26**	**0.23**	**0.19**	**0.26**
No qualifications in 1991, gained by 2001	**0.64**	**0.56**	**0.74**	**0.64**	**0.56**	**0.74**	**0.64**	**0.56**	**0.74**
Household tenure (ref: owner)									
Private renter	0.92	0.75	1.13	0.92	0.75	1.13	0.92	0.75	1.13
Social renter	1.01	0.78	1.29	1.01	0.78	1.29	1.01	0.78	1.29
Migrant generation (ref: UK born)									
Migrant	1.16	0.95	1.42	1.16	0.95	1.42	1.16	0.95	1.42
Internal migrant (ref: non-mover)									
Mover	0.98	0.89	1.08	0.98	0.89	1.08	0.98	0.89	1.08
Deprivation (ref: low)									
Moderate	0.99	0.89	1.10	0.99	0.89	1.10	0.99	0.89	1.10
High	1.08	0.97	1.20	1.08	0.96	1.21	1.08	0.96	1.21
Non-White Concentration (ref: low)									
Moderate				0.97	0.87	1.08			
High				0.99	0.88	1.12			
Herfindahl Index (ref: high)									
Moderate							0.98	0.88	1.10
Low							1.01	0.89	1.14

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Tables 8-41 and 8-42 show the results of multivariate multinomial logit models for White men. Table 8-41 shows the results for high to middle class transitions. Qualifications, couple status and age remained important after controlling for individual and household characteristics. Neighbourhood deprivation and ethnic composition were not significantly associated with this form of social mobility. Table 8-42 shows the results for high to low class transitions. The Baseline model shows that deprivation was significantly associated with downward mobility after controlling for individual and household characteristics. Ethnic composition was also important, with an increased risk of downward mobility among White men living in less ethnically diverse and more co-ethnically concentrated neighbourhoods.

Table 8.42: Multivariate predictors of transitions from high to high or low class among White men between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + Herfindahl		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)									
30 to 39	**0.77**	**0.67**	**0.88**	**0.77**	**0.67**	**0.88**	**0.77**	**0.67**	**0.88**
40 to 54	**1.15**	**1.00**	**1.33**	**1.15**	**1.00**	**1.33**	**1.15**	**1.00**	**1.33**
Couple status (ref: couple in 1991 and 2001)									
Single 1991 & 2001	1.13	0.98	1.29	1.14	0.99	1.31	1.14	0.99	1.30
Couple 1991, Single 2001	**1.41**	**1.19**	**1.66**	**1.41**	**1.20**	**1.66**	**1.41**	**1.20**	**1.66**
Single 1991, Couple 2001	0.99	0.84	1.17	1.00	0.85	1.18	1.00	0.85	1.18
Qualifications (ref: none)									
Qualifications	**0.08**	**0.07**	**0.10**	**0.08**	**0.07**	**0.10**	**0.08**	**0.07**	**0.10**
No qualifications in 1991, gained by 2001	**0.36**	**0.31**	**0.41**	**0.36**	**0.31**	**0.41**	**0.36**	**0.31**	**0.41**
Household tenure (ref: owner)									
Private renter	1.01	0.80	1.26	1.02	0.81	1.28	1.02	0.81	1.28
Social renter	**2.62**	**2.17**	**3.18**	**2.61**	**2.16**	**3.16**	**2.61**	**2.16**	**3.17**
Migrant generation (ref: UK born)									
Migrant	0.80	0.62	1.03	0.81	0.63	1.05	0.81	0.63	1.05
Internal migrant (ref: non-mover)									
Mover	**0.76**	**0.69**	**0.84**	**0.76**	**0.69**	**0.84**	**0.76**	**0.69**	**0.84**
Deprivation (ref: low)									
Moderate	**1.23**	**1.09**	**1.39**	**1.26**	**1.11**	**1.42**	**1.26**	**1.11**	**1.42**
High	**1.44**	**1.27**	**1.62**	**1.52**	**1.34**	**1.73**	**1.52**	**1.34**	**1.73**
Non-White Concentration (ref: low)									
Moderate				1.02	0.91	1.14			
High				**0.86**	**0.75**	**0.98**			
Herfindahl Index (ref: high)									
Moderate							**1.19**	**1.05**	**1.35**
Low							**1.16**	**1.02**	**1.33**

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

8.4.5.2 Indian men

Table 8-43 shows the descriptive statistics and results of the univariate multinomial logit regression models for Indian men in high class occupations in 1991. Age and couple status was not related to downward mobility. Indian men with qualifications were significantly less likely to experience downward mobility. Those living in socially rented accommodation were significantly more at risk of high to low class mobility. Downward mobility was not significantly related to migrant generation or whether an Indian man moved between 1991 and 2001.

Region of residence made no difference to the likelihood of downward mobility. Indian men living in more deprived neighbourhoods were at significant risk of high to low class mobility. Those living in more non-White concentrated and ethnically diverse neighbourhoods were significantly more at risk of downward mobility. Exposure to more people from other non-White ethnic groups was associated with downward mobility.

Table 8-44 and 8-45 show the results of the multivariate multinomial logit regression models for Indian men in high class occupations in 1991. Each table shows that deprivation and ethnic composition were not significantly associated with downward mobility after controlling for individual and household characteristics.

Table 8.43: Univariate predictors of transitions from high to high, middle or low class among Indian men between 1991 and 2001

	N High to High	N High to Middle	% Socially Mobile	RRR	95% CIs	p-value	N High to Low	% Socially Mobile	RRR	95% CIs	p-value
Age											
18 to 29 (ref)	95	18	14.6				BLANKED	8.1			
30 to 39	142	18	10.2	0.64	0.31-1.33	0.233	17	9.6	1.09	0.47-2.53	0.842
40 to 54	151	28	14.8	0.94	0.50-1.78	0.842	BLANKED	5.3	0.60	0.24-1.52	0.283
Couple status											
Couple 1991 & 2001 (ref)	289	53	14.2				31	8.3			
Single 1991 & 2001	30	BLANKED	11.8	0.78	0.26-2.33	0.655	BLANKED	0.0			
Couple 1991, Single 2001	BLANKED	BLANKED	27.3	1.36	0.28-6.61	0.701	BLANKED	0.0			
Single 1991, Couple 2001	61	BLANKED	7.0	0.46	0.18-1.21	0.116	BLANKED	7.0	0.79	0.31-2.04	0.627
Qualifications											
No qualifications (ref)	12	BLANKED	15.6				15	46.9			
Qualifications	265	22	7.5	0.20	0.07-0.62	0.005	BLANKED	2.7	0.02	0.01-0.07	<0.001
No qualifications in 1991, gained by 2001	111	37	22.8	0.83	0.27-2.54	0.744	14	8.6	0.11	0.04-0.27	<0.001
Household tenure											
Owner (ref)	365	59	13.0				29	6.4			
Private renter	14	BLANKED	15.0	0.95	0.21-4.32	0.942	BLANKED	15.0	2.89	0.77-10.88	0.121
Social renter	BLANKED	BLANKED	18.8	2.31	0.60-8.95	0.227	BLANKED	31.3	7.82	2.40-25.51	0.001
Migrant generation											
UK born (ref)	45	BLANKED	5.5				BLANKED	12.7			
Migrant	343	61	14.1	2.63	0.81-8.59	0.109	30	6.9	0.56	0.23-1.37	0.200
Internal migrant											
Non-mover (ref)	201	33	12.8				24	9.3			
Mover	186	31	13.5	1.04	0.61-1.76	0.892	13	5.7	0.60	0.29-1.22	0.157
Standard region 1991											
South East (ref)	255	39	12.3				24	7.5			
North	BLANKED	BLANKED	0.0				BLANKED	0.0			
Yorkshire	15	BLANKED	28.6	2.58	0.95-7.07	0.064	BLANKED	0.0			

East Midlands	36	BLANKED	8.9	0.72	0.23-2.22	0.565	BLANKED	11.1	1.46	0.51-4.17	0.482
East Anglia	BLANKED	BLANKED	42.9	3.23	0.57-18.27	0.185	BLANKED	0.0			
South West	BLANKED	BLANKED	0.0				BLANKED	0.0			
West Midlands	47	BLANKED	10.7	0.84	0.34-2.10	0.713	BLANKED	5.4	0.69	0.20-2.37	0.550
North West	20	BLANKED	20.7	1.94	0.73-5.18	0.187	BLANKED	10.3	1.58	0.43-5.75	0.492
Deprivation											
Low	137	20	12.3				BLANKED	3.1			
Moderate	126	22	13.8	1.20	0.62-2.31	0.593	12	7.5	2.61	0.87-7.82	0.087
High	120	22	13.6	1.20	0.61-2.34	0.596	20	12.3	4.57	1.68-12.44	0.003
Non-White Concentration											
Low	136	19	11.8				BLANKED	3.7			
Moderate	123	26	16.0	1.51	0.79-2.89	0.209	13	8.0	2.40	0.86-6.64	0.093
High	124	19	11.8	1.04	0.53-2.06	0.912	18	11.2	3.29	1.28-8.48	0.014
Herfindahl Index											
High	125	18	11.2				18	11.2			
Moderate	122	26	16.1	1.48	0.77-2.85	0.240	13	8.1	0.74	0.34-1.61	0.449
Low	136	20	12.3	0.97	0.49-1.92	0.931	BLANKED	3.7	0.31	0.12-0.79	0.014
Co-Ethnic Concentration											
Low	135	19	11.8				BLANKED	4.3			
Moderate	125	21	13.0	1.19	0.61-2.33	0.604	16	9.9	2.47	0.97-6.26	0.057
High	123	22	13.8	1.33	0.69-2.55	0.393	14	8.8	2.20	0.86-5.58	0.099
Other-Ethnic Concentration											
Low	138	18	11.2				BLANKED	3.1			
Moderate	125	23	14.1	1.41	0.73-2.74	0.311	15	9.2	3.31	1.14-9.59	0.027
High	120	23	14.4	1.41	0.72-2.76	0.323	17	10.6	3.91	1.41-10.86	0.009

Source: ONS LS, created by the Author

Table 8.44: Multivariate predictors of transitions from high to high or middle class among Indian men between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl			Baseline + co-ethnic			Baseline + other-ethnic		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	**0.28**	**0.11**	**0.72**	**0.25**	**0.10**	**0.65**	**0.25**	**0.10**	**0.65**	**0.28**	**0.11**	**0.74**	**0.28**	**0.11**	**0.72**
40 to 54	0.41	0.15	1.16	0.38	0.13	1.09	0.38	0.13	1.10	0.43	0.15	1.22	0.42	0.15	1.17
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	0.65	0.17	2.52	0.65	0.16	2.55	0.65	0.16	2.56	0.65	0.17	2.44	0.65	0.17	2.43
Couple 1991, Single 2001	1.44	0.18	11.19	1.37	0.16	11.67	1.36	0.16	11.60	1.59	0.18	13.92	1.53	0.17	13.87
Single 1991, Couple 2001	**0.29**	**0.09**	**0.92**	**0.29**	**0.09**	**0.92**	**0.29**	**0.09**	**0.91**	**0.29**	**0.09**	**0.95**	**0.29**	**0.09**	**0.93**
Qualifications (ref: none)															
Qualifications	**0.15**	**0.05**	**0.51**	**0.14**	**0.04**	**0.48**	**0.14**	**0.04**	**0.47**	**0.16**	**0.05**	**0.55**	**0.16**	**0.05**	**0.54**
No qualifications in 1991, gained by 2001	0.72	0.22	2.34	0.63	0.19	2.10	0.63	0.19	2.09	0.71	0.21	2.40	0.74	0.23	2.42
Household tenure (ref: owner)															
Private renter	1.10	0.20	5.86	1.05	0.20	5.45	1.03	0.20	5.40	1.17	0.22	6.25	1.21	0.23	6.46
Social renter	1.40	0.20	9.83	1.32	0.14	12.80	1.29	0.13	12.79	1.70	0.23	12.68	1.61	0.20	12.74
Migrant generation (ref: UK born)															
Migrant	**5.23**	**1.20**	**22.86**	**5.64**	**1.25**	**25.56**	**5.65**	**1.25**	**25.65**	**5.49**	**1.17**	**25.69**	**5.16**	**1.17**	**22.73**
Internal migrant (ref: non-mover)															
Mover	0.96	0.50	1.84	0.98	0.51	1.88	0.99	0.51	1.91	0.98	0.51	1.86	0.98	0.52	1.87
Deprivation (ref: low)															
Moderate	0.94	0.46	1.93	0.90	0.41	1.97	0.90	0.41	1.99	0.83	0.39	1.79	0.77	0.35	1.70
High	0.96	0.41	2.25	0.90	0.34	2.39	0.92	0.34	2.48	0.81	0.32	2.00	0.67	0.23	1.94
Non-White Concentration (ref: low)															
Moderate				1.99	0.90	4.39									
High				1.10	0.41	2.96									
Herfindahl Index (ref: high)															
Moderate							1.88	0.80	4.42						
Low							0.94	0.34	2.54						
Co-Ethnic Concentration (ref: low)															
Moderate										1.48	0.70	3.14			
High										1.69	0.70	4.07			
Other-Ethnic Concentration (ref: low)															
Moderate													1.78	0.82	3.86
High													1.91	0.65	5.59

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Table 8.45: Multivariate predictors of transitions from high to high or low class among Indian men between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl			Baseline + co-ethnic			Baseline + other-ethnic		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	1.08	0.33	3.51	1.02	0.31	3.38	1.02	0.31	3.38	1.07	0.32	3.62	1.18	0.33	4.14
40 to 54	0.34	0.08	1.39	0.33	0.08	1.42	0.33	0.08	1.42	0.33	0.07	1.47	0.38	0.09	1.65
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	**0.08**	**0.01**	**0.39**	**0.07**	**0.01**	**0.38**	**0.07**	**0.01**	**0.38**	**0.08**	**0.01**	**0.39**	**0.07**	**0.01**	**0.35**
Couple 1991, Single 2001	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Single 1991, Couple 2001	0.38	0.10	1.39	0.38	0.10	1.37	0.38	0.10	1.37	0.35	0.10	1.23	0.36	0.09	1.42
Qualifications (ref: none)															
Qualifications	**0.02**	**0.01**	**0.07**	**0.02**	**0.01**	**0.07**	**0.02**	**0.01**	**0.07**	**0.02**	**0.00**	**0.06**	**0.02**	**0.01**	**0.07**
No qualifications in 1991, gained by 2001	**0.06**	**0.02**	**0.22**	**0.06**	**0.02**	**0.21**	**0.06**	**0.02**	**0.21**	**0.05**	**0.01**	**0.18**	**0.06**	**0.02**	**0.22**
Household tenure (ref: owner)															
Private renter	2.48	0.71	8.68	2.53	0.74	8.63	2.52	0.74	8.60	2.12	0.64	7.08	3.94	0.97	16.11
Social renter	6.54	0.90	47.60	6.74	0.85	53.73	6.70	0.84	53.49	**8.00**	**1.00**	**63.94**	**8.64**	**0.98**	**75.85**
Migrant generation (ref: UK born)															
Migrant	**0.27**	**0.08**	**0.89**	**0.27**	**0.08**	**0.90**	**0.27**	**0.08**	**0.90**	**0.23**	**0.07**	**0.80**	**0.24**	**0.07**	**0.85**
Internal migrant (ref: non-mover)															
Mover	0.56	0.24	1.29	0.56	0.24	1.29	0.57	0.25	1.30	0.54	0.24	1.24	0.61	0.26	1.44
Deprivation (ref: low)															
Moderate	2.30	0.63	8.44	2.25	0.53	9.47	2.24	0.53	9.42	2.39	0.59	9.74	1.57	0.36	6.92
High	2.23	0.70	7.09	2.07	0.55	7.84	2.08	0.55	7.95	2.04	0.59	7.11	1.16	0.26	5.13
Non-White Concentration (ref: low)															
Moderate				1.98	0.51	7.73									
High				1.32	0.33	5.24									
Herfindahl Index (ref: high)															
Moderate							1.51	0.55	4.16						
Low							0.76	0.19	3.03						
Co-Ethnic Concentration (ref: low)															
Moderate										2.70	0.74	9.85			
High										1.03	0.24	4.46			
Other-Ethnic Concentration (ref: low)															
Moderate													4.45	0.88	22.40
High													4.60	0.69	30.49

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Summary of study 5

This study has investigated whether neighbourhood deprivation and ethnic composition were associated with an increasing risk of downward social class mobility among men in high class occupations in 1991. The results of multivariate models showed that deprivation and ethnic composition was significantly associated with high to low class mobility only for Whites. For Indian men, all neighbourhood characteristics which were significantly associated with downward mobility in univariate models were explained by individual and household characteristics.

8.4.6 Study 6: High to middle or low class among women

8.4.6.1 White women

This study is concerned with investigating whether neighbourhood deprivation and ethnic composition was associated with downward social class mobility among women in high class occupations in 1991. Table 8-46 shows the results for univariate multinomial logit regression models for White women. Since my previous analyses of ethnic inequalities were dominated by the White group, the results here are broadly in line with those I have already reported.

Table 8.46: Univariate predictors of transitions from high to high, middle or low class among White women between 1991 and 2001

	N High to High	N High to Middle	% Socially Mobile	RRR	95% CIs	p-value	N High to Low	% Socially Mobile	RRR	95% CIs	p-value
Age											
18 to 29 (ref)	3,473	693	15.0				464	10.0			
30 to 39	3,726	545	11.7	0.73	0.65-0.83	<0.001	401	8.6	0.81	0.71-0.94	0.004
40 to 49	3,096	597	14.6	0.97	0.86-1.09	0.620	408	9.9	1.00	0.87-1.16	0.980
Couple status											
Couple 1991 & 2001 (ref)	5,095	901	13.6				642	9.7			
Single 1991 & 2001	2,548	443	13.5	0.99	0.87-1.12	0.827	295	9.0	0.92	0.79-1.06	0.256
Couple 1991, Single 2001	992	166	12.9	0.95	0.80-1.13	0.569	124	9.7	1.00	0.81-1.22	0.980
Single 1991, Couple 2001	1,660	325	14.8	1.10	0.96-1.27	0.182	212	9.6	1.01	0.85-1.20	0.911
Qualifications											
No qualifications (ref)	304	169	23.2				254	34.9			
Qualifications	6,607	425	5.9	0.12	0.09-0.14	<0.001	229	3.2	0.04	0.03-0.05	<0.001
No qualifications in 1991, gained by 2001	3,379	1,240	22.9	0.68	0.56-0.83	<0.001	788	14.6	0.29	0.24-0.34	<0.001
Household tenure											
Owner (ref)	9,160	1,634	13.8				1,062	9.0			
Private renter	719	108	12.0	0.82	0.66-1.01	0.060	72	8.0	0.87	0.67-1.12	0.278
Social renter	372	89	15.0	1.32	1.03-1.70	0.030	134	22.5	3.18	2.58-3.92	<0.001
Migrant generation											
UK born (ref)	9,746	1,749	13.8				1,218	9.6			
Migrant	549	86	12.5	0.87	0.69-1.09	0.225	55	8.0	0.82	9,62-1.09	0.164
Internal migrant											
Non-mover (ref)	4,325	724	13.0				530	9.5			
Mover	5,967	1,108	14.2	1.11	1.00-1.23	0.054	742	9.5	1.01	0.90-1.13	0.834
Standard region 1991											
South East (ref)	4,244	837	15.0				488	8.8			
North	623	75	9.8	0.61	0.47-0.80	<0.001	71	9.2	0.99	0.76-1.29	0.927
Yorkshire	934	151	12.4	0.82	0.68-0.99	0.038	131	10.8	1.22	0.99-1.52	0.058

East Midlands	788	157	15.0	1.01	0.83-1.23	0.885	105	10.0	1.17	0.91-1.50	0.230
East Anglia	397	73	14.0	0.94	0.72-1.24	0.667	51	9.8	1.13	0.84-1.54	0.421
South West	892	150	12.9	0.85	0.70-1.03	0.097	122	10.5	1.20	0.96-1.49	0.105
West Midlands	996	164	12.7	0.82	0.68-0.99	0.035	130	10.1	1.13	0.91-1.40	0.259
North West	1,421	228	12.5	0.82	0.69-0.96	0.015	175	9.6	1.06	0.87-1.28	0.571
Deprivation											
Low	3388	618	14.1				385	8.8			
Moderate	3371	626	14.3	1.02	0.90-1.15	0.776	394	9.0	1.03	0.89-1.19	0.712
High	3356	563	12.8	0.92	0.81-1.04	0.195	471	10.7	1.24	1.07-1.43	0.005
Non-White Concentration											
Low	3339	616	14.0				439	10.0			
Moderate	3336	619	14.1	1.01	0.89-1.14	0.928	440	10.0	1.00	0.87-1.16	0.965
High	3440	572	13.1	0.90	0.80-1.02	0.103	371	8.5	0.82	0.71-0.95	0.009
Herfindahl Index											
High	3449	573	13.0				371	8.4			
Moderate	3331	618	14.1	1.12	0.99-1.27	0.086	440	10.0	1.23	1.06-1.43	0.007
Low	3335	616	14.0	1.11	0.98-1.26	0.096	439	10.0	1.22	1.05-1.42	0.008

Source: ONS LS, created by the Author

Table 8.47: Multivariate predictors of transitions from high to high or middle class among White women between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)									
30 to 39	**0.83**	**0.72**	**0.95**	**0.83**	**0.72**	**0.95**	**0.83**	**0.72**	**0.95**
40 to 49	0.98	0.85	1.13	0.98	0.85	1.13	0.98	0.85	1.13
Couple status (ref: couple in 1991 and 2001)									
Single 1991 & 2001	**0.82**	**0.72**	**0.95**	**0.83**	**0.72**	**0.95**	**0.83**	**0.72**	**0.95**
Couple 1991, Single 2001	**0.79**	**0.66**	**0.96**	**0.79**	**0.66**	**0.96**	**0.79**	**0.66**	**0.96**
Single 1991, Couple 2001	0.92	0.78	1.08	0.92	0.78	1.09	0.92	0.78	1.09
Qualifications (ref: none)									
Qualifications	**0.12**	**0.09**	**0.14**	**0.12**	**0.09**	**0.14**	**0.12**	**0.09**	**0.14**
No qualifications in 1991, gained by 2001	**0.68**	**0.55**	**0.83**	**0.68**	**0.55**	**0.84**	**0.68**	**0.55**	**0.84**
Household tenure (ref: owner)									
Private renter	0.89	0.70	1.12	0.89	0.71	1.13	0.89	0.71	1.13
Social renter	0.97	0.75	1.27	0.97	0.74	1.26	0.97	0.74	1.26
Migrant generation (ref: UK born)									
Migrant	0.99	0.77	1.28	1.00	0.78	1.29	1.00	0.78	1.29
Internal migrant (ref: non-mover)									
Mover	1.07	0.95	1.21	1.07	0.95	1.21	1.07	0.95	1.21
Deprivation (ref: low)									
Moderate	0.99	0.87	1.12	1.01	0.89	1.15	1.01	0.89	1.15
High	0.92	0.80	1.06	0.97	0.83	1.12	0.97	0.83	1.12
Non-White Concentration (ref: low)									
Moderate				0.93	0.81	1.06			
High				0.88	0.75	1.03			
Herfindahl Index (ref: high)									
Moderate							1.05	0.91	1.21
Low							1.14	0.97	1.33

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Table 8.48: Multivariate predictors of transitions from high to high or low class among White women between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)									
30 to 39	**0.82**	**0.69**	**0.96**	**0.82**	**0.69**	**0.96**	**0.82**	**0.69**	**0.96**
40 to 49	**0.77**	**0.64**	**0.93**	**0.77**	**0.64**	**0.93**	**0.77**	**0.64**	**0.93**
Couple status (ref: couple in 1991 and 2001)									
Single 1991 & 2001	**0.73**	**0.62**	**0.87**	**0.74**	**0.62**	**0.88**	**0.74**	**0.62**	**0.88**
Couple 1991, Single 2001	0.83	0.67	1.03	0.83	0.67	1.03	0.83	0.67	1.03
Single 1991, Couple 2001	0.84	0.69	1.03	0.85	0.70	1.03	0.85	0.70	1.03
Qualifications (ref: none)									
Qualifications	**0.04**	**0.03**	**0.05**	**0.04**	**0.03**	**0.05**	**0.04**	**0.03**	**0.05**
No qualifications in 1991, gained by 2001	**0.29**	**0.24**	**0.35**	**0.29**	**0.24**	**0.35**	**0.29**	**0.24**	**0.35**
Household tenure (ref: owner)									
Private renter	1.00	0.75	1.33	1.01	0.76	1.34	1.01	0.76	1.34
Social renter	**1.99**	**1.58**	**2.51**	**1.98**	**1.57**	**2.50**	**1.98**	**1.57**	**2.50**
Migrant generation (ref: UK born)									
Migrant	1.04	0.77	1.41	1.06	0.78	1.43	1.06	0.78	1.43
Internal migrant (ref: non-mover)									
Mover	1.01	0.88	1.17	1.01	0.88	1.17	1.01	0.88	1.17
Deprivation (ref: low)									
Moderate	0.95	0.81	1.11	0.98	0.83	1.15	0.98	0.83	1.15
High	1.09	0.93	1.29	1.17	0.98	1.39	1.17	0.98	1.39
Non-White Concentration (ref: low)									
Moderate				1.00	0.86	1.17			
High				0.86	0.71	1.04			
Herfindahl Index (ref: high)									
Moderate							1.17	0.99	1.39
Low							1.17	0.96	1.41

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

8.4.6.2 Indian women

Table 8-49 shows the descriptive statistics and univariate binary logit regression models for Indian women in high class occupations in 1991. Binary logit models are used as sample sizes were only large enough to investigate high to middle class transitions. Age made no difference to the risk of downward mobility. Indian women who were in a couple in 1991, but became single by 2001, were significantly more at risk of downward mobility compared to those who remained in a couple in 2001. Downward mobility was not significantly related to qualifications or housing tenure. Place of birth and whether an Indian women changed neighbourhood between 1991 and 2001 did not influence their risk of downward mobility. There was no significant regional variation, nor any significant differences in risk of downward mobility across neighbourhood characteristics.

Table 8-50 shows in the full multivariate binary logit regression models that all neighbourhood characteristics remained non-significant predictors of downward social class mobility for Indian women in high class occupations in 1991.

Table 8.49: Univariate predictors of transitions from high to high, middle or low class among Indian women between 1991 and 2001

	N High to High	N High to Middle	% Socially Mobile	OR	95% CIs	p-value
Age						
18 to 29 (ref)	55	14	20.3			
30 to 39	73	10	12.0	0.53	0.21-1.29	0.162
40 to 49	48	BLANKED	14.3	0.63	0.24-1.64	0.345
Couple status						
Couple 1991 & 2001 (ref)	125	22	15.0			
Single 1991 & 2001	23	BLANKED	11.5	0.49	0.11-2.23	0.353
Couple 1991, Single 2001	BLANKED	BLANKED	41.7	3.99	1.21-13.15	0.023
Single 1991, Couple 2001	21	BLANKED	12.5	0.84	0.23-3.10	0.792
Qualifications						

No qualifications (ref)	BLANKED	BLANKED	0.0			
Qualifications	128	BLANKED	5.9	0.13	0.01-1.54	0.105
No qualifications in 1991, gained by 2001	46	23	33.3	1.07	0.09-12.51	0.957
Household tenure						
Owner (ref)	160	29	15.3			
Private renter	14	BLANKED	0.0	0.42	0.05-3.34	0.411
Social renter	BLANKED	BLANKED	50.0	5.45	0.74-40.42	0.097
Migrant generation						
UK born (ref)	18	BLANKED	25.0			
Migrant	158	26	14.1	0.47	0.17-1.32	0.151
Internal migrant						
Non-mover (ref)	94	13	12.1			
Mover	82	18	18.0	1.65	0.77-3.52	0.197
Standard region 1991						
South East (ref)	107	19	15.1			
North	BLANKED	BLANKED	0.0			
Yorkshire	BLANKED	BLANKED	0.0			
East Midlands	16	BLANKED	23.8	1.84	0.58-5.84	0.299
East Anglia	BLANKED	BLANKED	0.0			
South West	BLANKED	BLANKED	0.0			
West Midlands	19	BLANKED	26.9	2.04	0.74-5.63	0.171
North West	11	BLANKED	0.0	0.50	0.06-4.20	0.525
Deprivation						
Low	61	BLANKED	11.6			
Moderate	58	10	14.7	1.32	0.49-3.41	0.585
High	54	14	20.6	1.98	0.78-5.03	0.153
Non-White Concentration						
Low	61	BLANKED	11.6			
Moderate	57	11	16.2	1.47	0.56-3.90	0.437
High	55	13	19.1	1.80	0.71-4.57	0.214
Herfindahl Index						
High	56	13	18.8			
Moderate	57	11	16.2	0.83	0.35-2.00	0.680
Low	60	BLANKED	11.8	0.57	0.23-1.46	0.243
Co-Ethnic Concentration						
Low	60	BLANKED	13.0			
Moderate	58	10	14.7	1.15	0.44-3.02	0.777
High	55	13	19.1	1.58	0.63-3.93	0.329
Other-Ethnic Concentration						
Low	61	BLANKED	12.9			
Moderate	59	BLANKED	11.9	0.92	0.33-2.54	0.871
High	53	15	22.1	1.92	0.80-4.63	0.147

Source: ONS LS, created by the Author

Table 8.50: Multivariate predictors of transitions from high to high or middle class among Indian women between 1991 and 2001

	Baseline			Baseline + non-White			Baseline + herfindahl			Baseline + co-ethnic			Baseline + other-ethnic		
	Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI		Odds Ratio	95% CI	
Age (ref: 18 to 29)															
30 to 39	0.78	0.22	2.72	0.79	0.22	2.79	0.79	0.22	2.83	0.82	0.23	2.97	0.83	0.25	2.73
40 to 49	0.97	0.24	3.90	0.99	0.25	3.92	0.98	0.25	3.88	0.96	0.23	4.02	1.03	0.28	3.82
Couple status (ref: couple in 1991 and 2001)															
Single 1991 & 2001	0.46	0.08	2.63	0.48	0.09	2.65	0.48	0.09	2.66	0.43	0.08	2.46	0.61	0.11	3.32
Couple 1991, Single 2001	2.39	0.57	10.03	2.46	0.59	10.34	2.46	0.58	10.41	2.87	0.62	13.23	2.63	0.65	10.58
Single 1991, Couple 2001	0.89	0.19	4.17	0.91	0.19	4.37	0.93	0.19	4.53	0.98	0.21	4.56	0.97	0.16	6.04
Qualifications (ref: none)															
Qualifications	0.35	0.04	3.16	0.38	0.04	3.50	0.34	0.04	3.19	0.29	0.03	2.58	0.45	0.05	3.89
No qualifications in 1991, gained by 2001	2.14	0.28	16.54	2.37	0.29	19.50	2.17	0.26	18.07	1.89	0.24	14.62	2.89	0.36	23.40
Household tenure (ref: owner)															
Private renter	0.76	0.11	5.10	0.77	0.11	5.38	0.76	0.11	5.35	0.58	0.10	3.28	0.65	0.11	3.84
Social renter	4.24	0.45	40.33	4.38	0.49	39.01	4.30	0.49	38.01	3.46	0.40	29.95	5.27	0.74	37.38
Migrant generation (ref: UK born)															
Migrant	0.89	0.17	4.80	0.86	0.15	4.77	0.85	0.15	4.78	0.80	0.14	4.46	0.72	0.13	3.95
Internal migrant (ref: non-mover)															
Mover	1.78	0.68	4.66	1.81	0.70	4.63	1.79	0.69	4.61	1.69	0.63	4.54	1.92	0.72	5.09
Deprivation (ref: low)															
Moderate	1.28	0.38	4.26	1.28	0.34	4.81	1.31	0.35	4.89	1.59	0.46	5.43	0.96	0.26	3.58
High	1.29	0.47	3.54	1.30	0.36	4.70	1.34	0.37	4.86	1.69	0.57	5.00	0.74	0.20	2.67
Non-White Concentration (ref: low)															
Moderate				0.80	0.26	2.46									
High				0.95	0.25	3.57									
Herfindahl Index (ref: high)															
Moderate							0.85	0.25	2.90						
Low							1.14	0.30	4.36						
Co-Ethnic Concentration (ref: low)															
Moderate										0.45	0.14	1.43			
High										0.50	0.16	1.54			
Other-Ethnic Concentration (ref: low)															
Moderate													0.78	0.22	2.74
High													2.55	0.62	10.54

Source: ONS LS, created by the Author Significant odds ratios (p<0.05) are highlighted in bold

Summary of study 6

This study was concerned with investigating whether neighbourhood deprivation and ethnic composition were associated with downward social class mobility among women in high class occupations in 1991. Multivariate models showed that none of the neighbourhood characteristics were significantly associated with downward mobility for White or Indian women. Small sample sizes restricted the extent of the analyses to only two groups, and also possibly limited the reliability of the models to produce accurate estimates. However, the main conclusion from the presented results is that neighbourhood characteristics do not influence the likelihood of downward mobility among the women analysed.

8.4.7 Sensitivity analysis – ordered logit regression

In Chapter 6 it was discussed whether the ordered logit regression would be more appropriate than the multinomial logit regression, to account for the ordinal format of the NS-SEC variable. I concluded that it was not, due to the consistent violation of the proportional odds assumption and the loss of information on the complexity of social mobility. As the NS-SEC variable has also been used in this chapter, I ran the 'omodel' command in Stata for each combination of dependent and independent variables, to test for the proportional odds assumption. Table 8.51 illustrates the results, with a reasonably large number of associations shown to violate the proportional odds assumption ($p<0.05$). This suggests that ordered logit regression would not have been more appropriate than the multinomial logit models which were used in this chapter.

Table 8.51: Testing the proportional odds assumption, using the 'omodel' command in Stata (Created by the Author using the ONS LS 1991-2001)

Dependent Variable	Independent Variable	chi *	p-value	Dependent Variable	Independent Variable	chi *	p-value
Men				Women			
White				White			
Low to middle/high	Couple status	5.86	0.119	Low to middle/high	Couple status	6.42	0.093
	Qualifications	**75.52**	**<0.001**		**Qualifications**	**7.13**	**0.028**
	Household tenure	3.18	0.365		**Household tenure**	**13.85**	**0.003**
	Migrant generation	**6.46**	**0.011**		Migrant generation	0.66	0.416
	Spatial mobility	1.63	0.444		**Spatial mobility**	**7.18**	**0.028**
	Deprivation	2.74	0.434		**Deprivation**	**20.01**	**<0.001**
	Non-White %	0.82	0.845		Non-White %	2.00	0.572
	Herfindahl index	0.78	0.854		Herfindahl index	1.99	0.574
	Region	**26.11**	**<0.001**		Region	8.16	0.319
Indian				Indian			
Low to middle/high	**Couple status**	**8.98**	**0.030**	Low to middle/high	Couple status	3.47	0.325
	Qualifications	**21.54**	**<0.001**		Qualifications	0.93	0.628
	Household tenure	0.83	0.660		**Household tenure**	**6.18**	**0.046**
	Migrant generation	0.63	0.426		Migrant generation	1.28	0.257
	Spatial mobility	0.24	0.621		Spatial mobility	0.17	0.684
	Deprivation	1.49	0.686		Deprivation	3.69	0.158
	Non-White %	3.94	0.268		Non-White %	3.85	0.146
	Herfindahl index	0.34	0.953		Herfindahl index	4.75	0.093
	Co-ethnic %	1.39	0.707		Co-ethnic %	3.25	0.197
	Other non-White %	1.25	0.742		Other non-White %	3.38	0.185
	Region	**36.03**	**<0.001**		Region	5.77	0.217
Black Caribbean				Black Caribbean			
Low to middle/high	Couple status	5.69	0.128	Low to middle/high	Couple status	2.45	0.485
	Qualifications	0.70	0.705		Qualifications	1.62	0.444
	Household tenure	0.93	0.628		Household tenure	0.21	0.900
	Migrant generation	1.45	0.229		Migrant generation	1.40	0.237
	Spatial mobility	2.34	0.126		Spatial mobility	0.07	0.790
	Deprivation	1.63	0.653		Deprivation	5.44	0.066
	Non-White %	4.11	0.250		**Non-White %**	**6.39**	**0.041**
	Herfindahl index	3.92	0.271		**Herfindahl index**	**6.82**	**0.033**
	Co-ethnic %	3.05	0.384		**Co-ethnic %**	**6.44**	**0.040**
	Other non-White %	4.56	0.207		**Other non-White %**	**6.88**	**0.032**
	Region	**13.38**	**0.010**		Region	2.97	0.813
White				White			
High to middle/low	Couple status	6.39	0.094	High to middle/low	Couple status	1.76	0.624
	Qualifications	**31.97**	**<0.001**		**Qualifications**	**18.53**	**<0.001**
	Household tenure	**40.20**	**<0.001**		**Household tenure**	**20.55**	**<0.001**
	Migrant generation	**8.58**	**0.003**		Migrant generation	0.08	0.780
	Spatial mobility	**10.88**	**0.004**		Spatial mobility	3.41	0.182
	Deprivation	**26.75**	**<0.001**		**Deprivation**	**14.40**	**0.002**
	Non-White %	6.30	0.098		Non-White %	1.05	0.789
	Herfindahl index	6.19	0.103		Herfindahl index	1.09	0.780
	Region	**37.09**	**<0.001**		**Region**	**24.30**	**<0.001**
Indian							
High to middle/low	**Couple status**	**9.98**	**0.007**				

Qualifications	5.61	0.061
Household tenure	2.01	0.366
Migrant generation	**5.64**	**0.018**
Spatial mobility	1.57	0.210
Deprivation	**9.54**	**0.009**
Non-White %	**8.99**	**0.011**
Herfindahl index	**9.01**	**0.011**
Co-ethnic %	**6.01**	**0.050**
Other non-White %	**7.19**	**0.027**
Region	**17.52**	**0.004**

* Approximate likelihood-ratio test of proportionality of odds across response categories

8.5 Discussion

8.5.1 Main findings

This chapter set out to answer four questions. These questions and the main findings of this chapter are summarised below.

1) *To what extent does neighbourhood deprivation increase the likelihood of downward social class mobility and decrease the likelihood of upward social class mobility across ethnic groups?*

Consistent associations between deprivation and social mobility were found for White men and women, but not for men and women of the Indian or Black Caribbean groups. In line with the question, neighbourhood deprivation was negatively associated with upward mobility among White people with low and middle class occupations in 1991. Furthermore, neighbourhood deprivation was positively associated with downward mobility among White people with high and middle class occupations in 1991.

Counter-intuitively, Black Caribbean men in low class occupations in 1991 were significantly more likely to be found in high class occupations by 2001 if they were living in more deprived neighbourhoods, after controlling for all individual and household characteristics and neighbourhood ethnic diversity. However, wide confidence intervals indicate that this association was unreliable. Further uncertainty is added when considering that this deprivation effect was only significant when a measure of ethnic diversity was included in the model. A similar observation was found for Black Caribbean women in low class occupations, who were significantly less likely to move to the middle class if living in deprived neighbourhoods, but only when other non-White ethnic concentration was included within the model. It is likely that these associations were an artefact of high correlation between deprivation and the measures of neighbourhood ethnic composition (i.e. not a real association). This is because deprivation was only significant when non-White concentration was also put in the model.

Therefore, in answer to the question of whether deprivation was negatively related to upward social class mobility and positively for downward mobility, the answer is yes, but only for White men and women after controlling for individual and household characteristics.

2) *To what extent is neighbourhood ethnic diversity associated with social class mobility within ethnic groups?*

Two measures of ethnic diversity were used; the non-White ethnic concentration; and the Herfindahl index of ethnic diversity. Like for the measure of deprivation, the effect of neighbourhood ethnic diversity on social mobility varied by ethnic group. For White men and women, living in a more ethnically diverse neighbourhood was often positive. Upward mobility was significantly more likely from low and middle class occupations for White men and women

living in more non-White concentrated and ethnically diverse neighbourhoods. Similarly, White persons living in more non-White concentrated and ethnically diverse neighbourhoods were significantly less likely to experience downward mobility from high and middle class occupations.

However, neighbourhood ethnic diversity was not found to be advantageous for ethnic minorities. For Black Caribbean men in low class occupations, their chances of moving to the high class were significantly poorer if they lived in a more ethnically diverse neighbourhood. A similar negative association was found for Indian women in low class occupations and their chances of moving to the high class. Meanwhile, Indian men in middle class occupations were at significant risk of downward mobility to the low class if they also lived in an ethnically diverse neighbourhood. For all other transitions analysed, neighbourhood ethnic diversity played no significant role in the chances of social mobility among Indian and Black Caribbean persons.

Therefore, in answer to the question of whether neighbourhood ethnic diversity is associated with social class mobility across ethnic groups, this chapter has shown that the only consistent association is found for the White group. Living in ethnically diverse neighbourhoods was advantageous for White men and women. In comparison, ethnically diverse neighbourhoods were negative for Indian and Black Caribbean people, but mostly not significantly related to their chances for social mobility.

3) *To what extent is social class mobility associated with the concentration of co-ethnics within the neighbourhood?*

As the non-White concentration measure is 100 minus the co-ethnic concentration of neighbourhoods for the White group, these results have already been covered in the response to question 2. However, in brief, it was shown that more co-ethnically concentrated neighbourhoods for White men and women were negatively associated with upward mobility, and positively associated with downward mobility.

Neighbourhood co-ethnic concentration for Indian and Black Caribbean men and women often made no significant difference to their chances for social mobility, after controlling for individual and household characteristics. Some exceptions were for Indian men in middle class occupations in 1991, who were significantly more at risk of downward mobility if living in a more co-ethnically concentrated neighbourhood. Black Caribbean women in middle class occupations were also significantly more at risk of downward mobility if living in more co-ethnically concentrated neighbourhoods.

Therefore, to answer to the question of whether co-ethnic concentration was associated with social mobility, the main finding was consistently affirmative for the White group only. For Indian and Black Caribbean women, living in more co-ethnically concentrated neighbourhoods was associated with downward social mobility.

4) *Among ethnic minority groups, is social class mobility associated with the concentration of non-White ethnic minorities within the neighbourhood?*

This question was only relevant to Indian and Black Caribbean groups, as it was a test of whether being exposed to non-White ethnic minorities in a neighbourhood was a positive or negative influence on chances for social mobility. In fact, this measure was almost always not significant for any model. Only for Black Caribbean women in low class occupations in 1991, who were significantly more likely to move to the middle class if living in a neighbourhood with a higher percentage of non-White ethnic minorities. However, the wide confidence intervals suggest that this association is unlikely to be reliable. Therefore, my answer to this question is that exposure to non-White ethnic minorities makes no difference to the chances for social mobility among Indian and Black Caribbean men and women.

8.5.2 Interpretation, strengths and weaknesses

Earlier chapters in this PhD thesis have shown consistently that neighbourhood deprivation tends to be negative for chances of upward social mobility, and positive for downward mobility. This chapter adds further support to this evidence, with the finding that White men and women living in deprived neighbourhoods were significantly more at risk of downward social class mobility and less likely to achieve upward mobility. These findings are in line with hypotheses relating deprivation to poorer life chances, which may be caused by social isolation and few weak ties (Wilson, 1987) and potential postcode discrimination and stereotyping (Farley et al., 1994).

For the White group, it was also found that living in more ethnically diverse neighbourhoods was advantageous. Ethnic diversity appeared to improve prospects for upward mobility, and reduce the risk of downward mobility. This result was consistently found after controlling for individual and household characteristics, region of residence, and neighbourhood deprivation. Furthermore, it was found using two different measures of ethnic diversity (non-White concentration, and the Herfindahl index of ethnic diversity), within samples of people who all lived within urban neighbourhoods. Therefore, this result is not explained by deprivation, nor that many of the most ethnically diverse neighbourhoods are located within and around London in the South East. Therefore, it is possible that ethnically diverse neighbourhoods provide more opportunities for White residents to become socially mobile. Allport's contact theory emphasised that living in more ethnically diverse environments breaks down barriers between ethnic groups (Allport, 1954). The mixing of people from different ethnic groups creates opportunities for developing weak ties and social networks that would not have been made by other people who were living in more ethnically homogeneous neighbourhoods (Pettigrew, 1998, 2008, Tropp and Pettigrew, 2005). The results of this chapter support Allport's hypothesis on the benefits of ethnic diversity for White men and women.

In comparison, the results for ethnic diversity were mainly not significant for Indian and Black Caribbean people. However, where the associations between ethnic diversity and social mobility for these groups were significant, they were the opposite of what was found for White people. In a small number of cases, ethnic diversity for Indian and Black Caribbean men and women increased the risk of downward mobility and reduced the likelihood of achieving upward mobility. These results do not support Allport's contact theory. Instead, they fall more in line with Blumer's conflict theory and Putnam's constrict theory, which both emphasised that ethnic diversity would have a negative effect on life chances overall through conflict and a decline in social capital (Blumer, 1958, Putnam, 2007). However, neither ethnic diversity, nor co-ethnic concentration and other non-White ethnic minority concentration had consistent effects on social mobility among Indian and Black Caribbean men and women. This also means that this chapter does not find any strong evidence to support either the ethnic enclave / protected market (Portes and Manning, 2005, Aldrich et al., 1985b, Aldrich and Waldinger, 1990), or segregation hypotheses (Wilson, 1987, Massey and Denton, 1993) for ethnic minorities.

The common theme within this chapter was significant effects for the White group and non-significant effects for Indians and Black Caribbeans. These results are similar to those found in chapter 7 when exploring mobility between economic statuses. The same strengths and weaknesses that were outlined in that chapter also apply here. Importantly, it may be that the absence of neighbourhood deprivation effects for Indians and Black Caribbeans is because this measure lacks relevance to these particular groups (Davey Smith, 2000). This could explain why deprivation was only found to be significantly related to social mobility among White men and women. A similar argument could be framed at the measures of neighbourhood ethnic composition. However, it could also be a numbers problem; with large sample sizes among the White group the models were able to detect significant associations. The small sample sizes for Indians and Black Caribbeans may have prevented models from finding similarly significant

associations. Therefore, it is difficult to conclude whether the findings for the White group would have been replicated for the Indians and Black Caribbeans if their sample sizes were larger, or whether there really was no effect of neighbourhood deprivation and ethnic composition on the life chances for social mobility of ethnic minority groups in England.

8.6 Conclusion

This chapter found the chances of social mobility among White men and women to be significantly disadvantaged by living in deprived neighbourhoods, but advantaged by living in ethnically diverse neighbourhoods. These findings suggest some support for hypotheses related to deprivation and Allport's contact hypothesis for the White group only. In comparison, few significant effects were found for Indians and Black Caribbeans. Notably, Black Caribbean and Indian women were more at risk of downward social mobility if they were living in neighbourhoods with high same-ethnic group concentrations. This supports segregation hypotheses, and not the 'protected market' or 'ethnic enclave' hypotheses. For ethnic minorities, neighbourhood deprivation appeared to be less important for their chances of social class mobility

9. Discussion and conclusions

9.1 Introduction

My thesis began by reporting that factors which have been shown to be important determinants of social mobility (e.g. educational qualifications) do not explain ethnic inequalities in social mobility in England. Various studies which have documented these persistent ethnic inequalities in economic activity and social class have often suggested that they represent 'ethnic penalties' (Heath and Cheung, 2007, Simpson et al., 2009, Carmichael and Woods, 2000, Berthoud, 2000). I highlighted that few studies in the literature had considered geographical factors, particularly those at the neighbourhood scale. With consideration of debates in geography, economics, sociology, and political science, I outlined many potential reasons why neighbourhood characteristics may be important for social mobility. The residential patterns of ethnic groups in England are not all the same; these geographical differences may contribute to variation in life-chances between ethnic groups. My overall hypothesis was that neighbourhood characteristics such as deprivation may explain the previously observed ethnic inequalities in social mobility. In previous studies where neighbourhoods have not been taken into account, those studies may have exaggerated the extent to which some ethnic groups do better than others.

Five chapters (4-8) were dedicated to the statistical analysis of ethnic inequalities in economic status and social mobility at the neighbourhood scale. The aim of this chapter is to draw all the major findings together to discuss the overall contribution of my thesis to answering my central hypothesis *(that ethnic inequalities in social mobility are the result of differences in neighbourhood deprivation and ethnic composition between ethnic groups)*; what these findings mean and whether they are important; how they compare to previous studies; their relevance to policy; their strengths and limitations; and what the next steps could be in this area of research.

9.2 Major findings of my thesis

Contrary to my central hypothesis, the first major finding of my thesis was that ethnic inequalities in social mobility are not explained by neighbourhood characteristics. Previous reports of ethnic inequalities in social mobility, or ethnic penalties, have not been exaggerated due to a lack of attention to neighbourhood and ethnic composition.

This result was consistent regardless of the many ways in which social mobility was defined and analysed, and the range of neighbourhood characteristics considered in my thesis. In other words, ethnic inequalities in economic status and social class mobility were not the result of exposure to neighbourhood deprivation or measures of ethnic composition. This was a little surprising, as neighbourhood deprivation was associated with downward social mobility and ethnic minorities were more likely to live in deprived neighbourhoods (Simpson and Finney, 2009, Simpson et al., 2009, Phillips, 1998). However, neighbourhood deprivation did not explain the disadvantage experienced by ethnic minorities.

Therefore, despite the belief that socioeconomic and ethnic segregation has negative consequences on life chances, and that the long-term policy of socially mixing communities in England is a solution to improving life-chances (Cheshire, 2007), my thesis supplies no evidence to suggest that these actions will help to reduce the persistent ethnic inequalities in social mobility. I will discuss the policy implications of my thesis in more detail later in this chapter.

Although neighbourhood characteristics did not explain ethnic inequalities in social mobility, this did not mean that where people lived did not matter. The second major finding of my thesis is that, controlling for ethnicity and other individual and household characteristics, neighbourhood deprivation was consistently associated with negative outcomes. For example, the likelihood of experiencing transitions from employment to unemployment and downward social class mobility

were higher among residents of deprived neighbourhoods. Furthermore, the chances of moving out of unemployment into employment, or achieving upward social class mobility, were significantly lower for those in more deprived neighbourhoods. Therefore, my thesis demonstrated evidence to support hypotheses linking deprived neighbourhoods with reduced life chances (Wilson, 1987). However, it is impossible to attribute support to one hypothesis (e.g. lack of weak ties) from another (e.g. negative neighbourhood reputations).

Moreover, it is worth mentioning that consistently significant effects of deprivation were only found among White people. For the ethnic minority groups, neighbourhood deprivation was often associated with negative outcomes (e.g. higher risk of becoming unemployed), but the effects were not statistically significant. This raises the debate over whether: (1) the deprivation effect identified in my thesis is real for the White group only; or (2) real for all ethnic groups, but the measure I used was less relevant for minorities; or (3) entirely an artefact of selective migration. A fourth possibility, and the position which I prefer on this situation, is that the analyses of individual ethnic minority groups lacked statistical power to detect significant results. The analyses in chapter 5 and 6 (of all ethnic groups within the same models) provide the most robust evidence in my thesis because sample sizes were very large. Although the results of chapters 7 and 8 suggested neighbourhood deprivation was only important for Whites, if sample sizes for ethnic minorities had been of a similar size, I might also have found significant effects of deprivation for them too. These issues are discussed in the strengths and limitations section of this chapter.

Deprivation was an important characteristic even after controlling for ethnicity, but the ethnic composition of neighbourhoods was not a consistently significant predictor of social mobility. Often, the measures of ethnic diversity and concentration were statistically significant in univariate models. However, multivariate modelling showed that these effects could be explained by other characteristics of individuals and the households in which they lived (in multivariate

models). But in ethnic-specific models, I found consistently beneficial effects of neighbourhood ethnic diversity among White people, but not among Indians or Black Caribbeans. White persons living in more ethnically diverse neighbourhoods were significantly more likely to achieve upward social mobility. This fits with the contact theory that hypothesised diverse settings would promote interaction and reduce prejudice between different ethnic groups (Allport, 1954), which could then potentially lead to a richer network of weak ties (Granovetter, 1973). However, if contact theory were a correct explanation of the ethnic diversity effect on positive outcomes, I would expect to find consistent associations for all ethnic groups, but this was not the case for Black Caribbeans or Indians. The lack of significant effects for these groups could be due to small sample sizes, or may also indicate that the effect of ethnic diversity for Whites were not the result of contact theory, but because of omitted variables (e.g. employment opportunities may be higher in ethnically diverse neighbourhoods for White people specifically). However, what this does mean is that no evidence was found to suggest that policymakers should be worried about the ethnic composition of neighbourhoods. In fact, deprivation should be the main issue of concern. Reducing neighbourhood deprivation throughout England might improve the chances of upward social mobility among those who are most disadvantaged. This was the third major finding of my thesis.

Other results of my PhD included consistent effects of couple status on social mobility. Among men, having a partner was consistently better for positive economic status (i.e. finding employment) and upward social class mobility. In comparison, for women, sometimes being single was associated with better outcomes. These associations were even found among people who changed couple status between 1991 and 2001. Migrant status was often not an important predictor of social mobility. Regional differences were found in social mobility; a north=south gradient was often shown with better outcomes more commonly occurring in the south east and

west of England. These results demonstrate the importance of taking a longitudinal approach when investigating what determines ethnic inequalities in social mobility.

9.3 Comparison to other studies

No study is so novel that it has no relation to other previously published papers and my thesis is no different. In the literature review I discussed a range of ideas and evidence that has informed the research questions, hypotheses, design and analyses included in my thesis. My primary concern was the potential relationship not only between neighbourhood characteristics and social mobility, but how the disproportionate exposure of some ethnic groups to certain characteristics of their neighbourhoods may create and reinforce ethnic inequalities in social mobility. Some studies have explored the earlier relation, but evidence on the latter is rare. It is this latter gap in the literature that my thesis has addressed theoretically and empirically with a longitudinal study of neighbourhood effects on ethnic inequalities in social mobility.

As previously discussed, among the best sources of evidence on neighbourhood effects and social mobility in terms of study design were the Moving to Opportunity (MTO) experiments in several major cities of the USA (Sampson et al., 2002). In fact, published findings on MTO data have not found an effect of neighbourhood deprivation on social mobility at all (Kling et al., 2007), unlike the results in my thesis. MTO, unlike most studies of neighbourhood effects on social mobility, is considered quasi-experimental as the neighbourhood exposure was randomised. Most studies rely on non-randomised observational data, which leads to significant concerns over selection bias (Sampson and Sharkey, 2008). My thesis falls into this latter category of studies. However, it is important to note that MTO was not perfect and our limited ability to make generalisations about its results means that we must continue to investigate important questions

using the best methods available at the time, which often mean using observational data (Sampson, 2008).

Leaving the issue of selection bias to one side (I will discuss this later in the chapter), there are many interesting comparisons to be made between my thesis and the studies thought by many to provide the strongest evidence on neighbourhood effects and social mobility. One of the key issues of comparison between MTO and my thesis, for example, is that MTO concentrated on deprived communities who also happened to live in highly ethnically concentrated neighbourhoods. The participants in MTO were largely from the Black ethnic group and were very poor. This means that the results of MTO cannot be generalised easily to other ethnic groups that also live in poor neighbourhoods. Nor do these studies have much to say about people who occupy relatively affluent positions in society and the potential for neighbourhoods to affect their social mobility: for better or for worse. Therefore, MTO was not explicitly concerned with whether neighbourhood characteristics are significant determinants of ethnic inequalities in social mobility. In comparison, my thesis has been able to explore these issues, taking into account many of the largest ethnic groups living in England, their relative life chances for social mobility, and not just those who live in deprived neighbourhoods, but those in more affluent ones too.

Furthermore, it is important to point out that although the design of MTO involved the relocation of some participants from deprived to significantly more affluent neighbourhoods, no consideration was explicitly made with respect to the ethnic composition of the destinations. Neighbourhood poverty was of primary interest to the MTO experiments; ethnic residential concentration was not. It has been reported that MTO participants often moved to neighbourhoods with similar ethnic compositions to those they previously lived in (Clark, 2008). This meant that MTO analyses were unable to explore hypotheses relating the ethnic composition of neighbourhoods to the life chances of people who live there. In comparison, hypotheses such

as those concerning ethnic segregation, enclaves, isolation, discrimination and social capital that relate to neighbourhood ethnic concentration and diversity were explored in my thesis.

Therefore, although MTO remains some of the best evidence on neighbourhood effects and social mobility, the design and overall questions are quite different to those addressed in my thesis. Indeed, the most obvious point of comparison between my thesis and MTO is the international context. MTO was focused on several major cities in the USA during a period of national economic prosperity between 1994 and 1997 (Sanbonmatsu et al., 2006, Gordon, 2002). In comparison, my data came from England in the 1990s, which experienced recession in 1992 (BBC News Online, 1993) and improved economic prospects only in the years towards the end of the decade (BBC News Online, 1993, 2005).

The history of international migration and trends in ethnic residential patterning are also key differences between the USA and the UK situations. The geographical separation of Black Americans from their White peers in the USA was the result of decades of institutionalised racism designed to 'protect' Whites from social interaction with Blacks (Massey and Denton, 1993). However, even after the removal of institutional racism, ethnic residential segregation remains extremely high for most Black Americans in the USA (Williams and Collins, 2001, Peach, 2009). It is very important to note that these circumstances which were common in the US were not present in the UK. However, discrimination has been reported in the UK housing market, systematically forcing ethnic minorities to live in poorly maintained housing in highly deprived neighbourhoods (Phillips, 1998). Despite this, urban areas of the UK tend to be ethnically diverse, with the trend for geographical dispersal of ethnic groups well established (Simpson, 2004, Finney and Simpson, 2009b, Finney and Simpson, 2009a, Simpson and Finney, 2009, Rees and Butt, 2004, Stillwell and Phillips, 2006) and the rapidly growing number of mixed ethnic unions a reflection of increasing ethnic diversity and interaction of a multicultural society (Peach, 2005b, Feng et al., 2010, Aspinall, 2009, 2010).

In short, whereas the USA remains a society characterised by high levels of ethnic residential segregation, the UK is different as even those neighbourhoods thought to be 'segregated' are actually some of the most ethnically and socially diverse in the country (Peach, 1996a, 2005a, 2009, Johnston et al., 2002a, Simpson and Finney, 2009). These differences alone mean that the results of MTO cannot easily be generalised to the UK situation. Similar points can also be made of other studies in North America on neighbourhood effects and social mobility. Some have reported positive effects (Borjas, 1995, 1997, 1994, Cutler et al., 2008b), but most have found negative associations (Cutler and Glaeser, 1997, Mendenhall et al., 2006, Popkin et al., 1993, Rosenbaum, 1995, Clampet-Lundquist and Massey, 2008, Elliott, 1999), although some others have also documented no effect (e.g. Oreopoulos, 2003).

One of the key aspects of doing quantitative research like that presented in my thesis is to be able to report findings generalisable to the rest of society. I have already argued in Chapter 2 that even the results of the most well-designed longitudinal analyses of neighbourhood effects and social mobility conducted by Musterd, Galster and Andersson in the Netherlands (2005) and Sweden (2006), and the natural experiments of refugee dispersal in Sweden and Denmark (Damm and Rosholm, 2010, Edin et al., 2003) may not be the same if similar studies were conducted in the UK context. This is one major reason why my research is important and fills a real gap in the literature.

Unlike the MTO experiments, Musterd et al found significant effects of deprivation (Andersson and Musterd, 2010, Galster et al., 2008, 2010, Musterd and Andersson, 2006, Musterd et al., 2003) and ethnic concentration (Musterd and Andersson, 2005, Musterd et al., 2008) on social mobility. Neighbourhood deprivation was found to be consistently associated with negative outcomes, like the results of my thesis. Musterd et al also found that ethnic minority concentration was associated with lower rates of social mobility, whereas Damm and Edin found positive effects of living with people of the same ethnicity for social mobility among refugees in

separate studies. In comparison, my thesis found no evidence of a positive or a negative relationship between social mobility and ethnic minority concentration, except for the White group, for whom more diverse surroundings were beneficial.

The UK-based research by Clark and Drinkwater (Clark and Drinkwater, 2000, 2002) provides the most contextually relevant comparison to my thesis. In their first analysis of the *Fourth National Study of Ethnic Minorities* (2000), Clark and Drinkwater found individuals with low English fluency and who had recently migrated to the UK were less likely to be self-employed. To their surprise, and contrary to the protected market (Aldrich et al., 1985b, Aldrich and Waldinger, 1990) and ethnic enclave hypotheses (Portes and Manning, 2005, Wilson and Portes, 1980), Clark and Drinkwater found rates of self-employment to be lower among individuals living in co-ethnically concentrated neighbourhoods.

However, it is very important to note that Clark and Drinkwater (2000) did not control for neighbourhood deprivation, which they acknowledge may be a confounding explanation for this negative association. In their follow-up analysis of the *Fourth National Study of Ethnic Minorities* (which was combined with analyses of the *Sample of Anonymised Records* from the 1991 Census), Clark and Drinkwater (2002) utilised a number of neighbourhood deprivation measures and found broadly the same results: lower rates of self-employment in co-ethnically concentrated neighbourhoods. My thesis found similar negative effects of co-ethnic concentration on self-employment and total employment (full-time, part-time and self-employment) before and after controlling for deprivation. However, in my further analyses, I found a significant interaction between deprivation and co-ethnic concentration. In more deprived neighbourhoods, those which were also co-ethnically concentrated had higher levels of self and total employment, and lower rates of unemployment, than deprived neighbourhoods with low co-ethnic concentration. My thesis therefore extends Clark and Drinkwater's studies through consideration of other dependent variables (total employment, unemployment, economic inactive

for other reasons) in addition to self-employment, the effect of co-ethnic concentration independent of neighbourhood deprivation, and the interaction of neighbourhood deprivation and ethnic composition, to reveal a different set of findings that support the protected market and ethnic enclave hypotheses.

Like Clark and Drinkwater's studies, the results discussed above from my thesis were based on cross-sectional data analysis (Chapter 4). This type of study design suffers from potential reverse causality, as I have discussed in Chapters 2 and 3. My longitudinal analyses in Chapters 5-8, which specifically examine neighbourhood effects in 1991 on changes in economic status and social class by 2001, do not suffer this problem and are therefore better designed. Although in these analyses I did not investigate self-employment (as the numbers were too small), I did find that neighbourhood deprivation and various measures of ethnic composition had virtually no effect on social mobility for ethnic minority groups. Neither did neighbourhood characteristics explain the ethnic inequalities in social mobility. Therefore, basic cross-sectional study designs often find significant associations between neighbourhood characteristics and economic outcomes, such as those used by Clark and Drinkwater (2000, 2002) and myself (chapter 4). However, by using a more sophisticated longitudinal design (in chapters 5-8), a different set of conclusions may be reached.

The only other longitudinal research on ethnic inequalities in social mobility in England has been conducted by Platt (Platt, 2005a, 2007). However, Platt focused on an intergenerational definition of social mobility (a person's economic status compared to their parents), whereas my research was only concerned with intragenerational social mobility (changes during a person's life time between 1991 and 2001). Platt's research also did not explicitly investigate the role that neighbourhood may play in determining ethnic inequalities in social mobility. There are no other longitudinal studies of neighbourhood effects on ethnic inequalities in social mobility in the UK for comparison, which illustrates the novel contribution my thesis makes to the literature.

9.4 Policy relevance of the findings

The objective of creating mixed communities has been part of urban policy for many Western European governments since the early 20th century (Cole and Goodchild, 2000). Various mechanisms have been used, such as the partial demolition and restructuring of large, socially and spatially concentrated housing estates to include a mix of poor and affluent households (e.g. Galster, 2007). The relevance of these policies for social mobility was outlined in the literature review: for increasing opportunities for meeting people of different socioeconomic and ethnic backgrounds; for increasing weak ties and access to role models; for dissolving negative social norms; and for improving the reputations of poor neighbourhoods. However, as Cheshire (2007, p5) has argued:

> *"Attempting to achieve the aim consumes significant resources, particularly in the realm of social housing, planning policies and expenditure by developers as a result of Section 106 agreements. A condition of planning permission is often that a significant proportion of a development is composed of 'affordable' housing within the reach of lower-income households. If, however, making communities more mixed (or less segregated) does not improve the welfare of poorer people and reduces the welfare of richer people – or just makes no difference to either group – then it is a waste of real resources which could have been used to actually improve the position of poorer groups, if we had had a better understanding of how cities worked and of the sources of welfare."*

To summarise Cheshire's thesis, in the absence of high quality evidence that socially mixed neighbourhoods are fairer, or that segregated ones restrict life chances, then money spent on trying to keep neighbourhoods mixed might be better spent on reducing income inequalities in

England at a national scale instead. Given the rising popularity of the income inequality thesis (http://www.equalitytrust.org.uk), it may be that Cheshire is correct to an extent. However, this is only to an extent, because if there is an absence of high quality evidence that certain neighbourhood characteristics are definitely bad, this does not rule out that some other characteristics may have positive effects. There is simply a lack of high quality evidence. Cheshire cites MTO as an example of high quality evidence, but until similar experiments are conducted in England it is difficult to know either way, since the generalisability of MTO findings outside the USA is not guaranteed.

The findings in my thesis do not offer conclusive proof; all knowledge is conditional upon the strengths and limitations of the method with which it was discovered. However, currently my thesis represents the only longitudinal evidence available on whether and how neighbourhoods affect ethnic inequalities in social mobility in England between 1991 and 2001. The answer is that neighbourhood deprivation and ethnic composition do not appear to affect ethnic inequalities in social mobility. For policymakers attempting to reduce the geographical inequalities of deprivation and affluence, dissolving residential concentrations of minorities is unlikely to reduce the gap in life chances between Whites and other ethnic groups. In other words, socially, ethnically, and economically mixing neighbourhoods alone will not make society fairer for people living in England who are not White.

Does this mean that knowledge of geographical inequalities in social mobility is unnecessary? This is not the case, for as Cheshire (2007) also argues, it may still be that neighbourhood-based policies are an efficient way of targeting people who will need more support in order to find employment, or become upwardly mobile. For example, it is important that knowledge of regional inequalities in social mobility (as highlighted in chapters 4, 5 and 6) is known for the future allocation of capital, resources, and incentives for the location of companies and industry. At the neighbourhood scale, deprivation was a significant predictor of becoming unemployed,

continuing to be unemployed, being downwardly mobile and continuing to be in a lower social class occupation. Therefore, identifying deprived neighbourhoods may be a useful way to identify people who need more support. But this finding was only consistently significant for White people so, on this basis, targeting deprived neighbourhoods is only certain to select White people who are in more need of support. As there was no consistent effect of deprivation on the social mobility of people in a non-White ethnic group, targeting deprived neighbourhoods is unlikely to be an efficient way of selecting those persons who are in great need of support, from those who can be upwardly mobile without some sort of policy intervention.

My point is that there is no reason to abandon identifying neighbourhoods by particular characteristics if they are an efficient means of reaching people in need of support. However, it is unlikely that a one-size-fits-all approach will benefit each person equally and it may be that policies need to be tailored to the socioeconomic and geographical circumstances of different ethnic groups. For example, in the case of ethnic composition, the results of my thesis seem to suggest that increasing the ethnic diversity of neighbourhoods may have a beneficial effect on the White group, but no significant effect on the life chances of any other ethnic group. This is contrary to the often negative and unsupported view of ethnic minority concentrated neighbourhoods as having inherently negative consequences for society as discussed by Peach (1996c).

Assuming that the positive neighbourhood effect of ethnic diversity on the White group is real and not the result of omitted variables, does this mean that policies that promote ethnically mixed neighbourhoods should be rolled out based on the hope that they may help about 90% of the population? Even when, all other things being equal, this group are already more likely to be upwardly mobile compared to the other 10% who are non-White? Should resources for improving social mobility be focused toward the largest possible share of the population for a small but significant increase in life chances? Or would resources be better targeted towards

substantially raising the life chances among a minority share of the population who would stand to benefit far more than most in society? These questions are important for further consideration, but are beyond the remit of my thesis. However, what does appear clear is that there continues to be no evidence to support the pejorative stereotyping of so-called 'ethnically segregated' neighbourhoods, which are some of the most diverse in England and, on balance, appear to improve the life chances of White people.

9.5 Strengths and limitations

Each chapter includes a strengths and limitations section, so my objective here is not to repeat those observations. Instead, I will outline the most significant strengths and limitations of the thesis as a whole. Most important is the overall approach. I have focused on using quantitative methods and analysis of large, nationally-representative data to answer my research questions. A key strength of my thesis is that I was able to utilise the largest and only source of longitudinal data available for ethnic minority groups in England. Without this data, the thesis would have been impossible to complete in its current format. An alternative strategy may have involved the use of qualitative methods, or a more in-depth analysis of policies such as the Race Relations Act in 1976 in combination with more basic analyses of cross-sectional data (e.g. the Sample of Anonymised Records or the Labour Force Survey) and how changes in policy may have influenced ethnic inequalities in economic status. However, these methods or approaches would not have been sufficient to answer my research questions, which necessitated a longitudinal analysis of people tracked across a significant period of time (e.g. 10 years).

As the data set is nationally representative, our ability to generalise the results to the population of England is reasonable. However, the results can only be generalised to people who lived in

urban neighbourhoods within England in 1991 and 2001, due to the restrictions I placed on the data. Furthermore, the nationally representative quality of the data was also a limitation. As ethnic minorities consisted of less than 10% of the UK population during that period, the sample sizes for some groups remained very small. This reduced the range of analyses that could be done reliably. Small sample sizes also mean that the statistical power available in ethnic-specific models was possibly too low to be able to detect significant relationships in the data. It is possible that if sample sizes for ethnic minorities had been as large as those for the White group, more significant associations could have been found. However, this data does not yet exist in England for me to analyse. It was possible to track people back to 1971 or 1981 if they were living in the UK as children, and therefore able to measure some of the characteristics of the household in which they grew up (e.g. parental economic activity). However, the numbers were so few for the ethnic minority groups that the models would have been unreliable (many models included in Chapters 7 and 8 are already very low on statistical power). As neighbourhood characteristics were already found to be non-significant predictors of social mobility for ethnic minorities, these extra controls would be unlikely to modify the results.

A key strength of the method was the measurement of neighbourhood exposure in 1991, before a change in the dependent variable (economic status, social class) was able to occur by 2001. This 'lagged effects' design removed the problem of reverse causality which affects studies of cross-sectional design, such as those by Clark and Drinkwater (2000; 2002). However, as mentioned earlier in the chapter, the data was observational and people were not randomly assigned to their neighbourhood of residence. This means that even after controlling for many individual and household characteristics, selection bias remains a potential issue. It is impossible to say with certainty just how much the results are affected by selection.

Perhaps the historically forced selection of ethnic minority people from a variety of socioeconomic circumstances into some of the most deprived neighbourhoods in England meant

that the average life chances for social mobility were not significantly lower than in more affluent areas. In comparison, White persons living in deprived neighbourhoods are unlikely to have experienced such levels of ethnic discrimination in the housing market, so those who live in more deprived neighbourhoods really are poor compared to their peers in more affluent areas. So, there are at least three possible scenarios. First, the significant neighbourhood effects observed for Whites and non-significant effects for other groups may be real. Second, the results may be the product of selection bias. Third, it may be just that the models for ethnic minority groups lacked the statistical power to identify significant associations. It is difficult to tell the difference between either scenario without a longer and more frequent investigation (e.g. people surveyed annually across 20-30 years of working age) of larger samples of ethnic minority groups, that incorporates migration and an experimental design like MTO. This ambition is beyond the remit of my thesis and impossible with the data currently available, but could form the grounds of future investigation.

9.6 Suggestions for future research

My policy recommendations highlighted the potential need for policies that appreciate ethnic differences in life chances. Therefore, research on ethnic inequalities in employment, social class, education, housing, health and other types of life chances needs to be a focus for policy if England is to be a fair place to grow up regardless of what ethnic group a person identifies with. As discussed in the strengths and limitations section, longitudinal data for ethnic minorities in England is rare, but is necessary for tracking people through time to see how they do. Therefore, future research needs to involve more detailed quantitative analyses of larger longitudinal data sets that appreciates the complex concept of ethnicity beyond the categories prescribed by the

Census. Surveys needs to be conducted more regularly than every 10 years in order to build more comprehensive data for which to analyse trends over time. Furthermore, research projects need to become more sophisticated in design. My research was conducted as a PhD thesis. However, professional researchers and policymakers with even grander aspirations need to collaborate on more sophisticated and ambitious projects, which build on lessons learned from the MTO experiments, to apply a similar randomised-trial approach that can really separate out what neighbourhood effects are causal from those which are merely coincidental. However, whether an MTO-style experiment is politically and ethically acceptable in England remains to be seen.

For future research, it may be helpful to omit the term 'ethnic penalties' from further use. I suggest this because the term is unhelpful as it is only ever used in reference to ethnic minorities, and seems to suppose that all minorities do worse than the majority (Whites in the case of England). My thesis showed evidence that this is not always the case. For example, Pakistani, Bangladeshi and Chinese men were all significantly more likely to experience upward social mobility from low to middle class occupations than White men. Black Caribbean and Black African men were significantly more likely than White men to move up to high class occupations from the middle class. Furthermore, Chinese women were more likely than White women to move from low to middle class occupations.

In other words, it is important to recognise that these inequalities are not always negative for ethnic minority groups. The term 'ethnic penalties' is therefore misleading and 'ethnic inequalities' is perhaps a more appropriate terminology for descriptive purposes. Building on this change in attitude, it is clearly worth exploring in more detail why these particular ethnic groups, for those specific measures of social mobility, appear to break the overall trend and do better than their White peers. It could be important new information is found that can be used to help make society a little fairer for all people, regardless of their ethnic identity.

10. Reference List

Aaronson, D. 1997. Sibling estimates of neighborhood effects. *In:* Brooks-Gunn, J., Duncan, G. J. & Aber, J. L. (eds.) *Neighborhood Poverty: Context and Consequences for Children.* New York: Russell Sage Foundation.

Agresti, A. 2007. *An introduction to categorical data analysis,* Hoboken: Wiley-Blackwell.

Aldrich, H. E., Cater, J., Jones, T., Evoy, D. M. & Velleman, P. 1985. Ethnic Residential Concentration and the Protected Market Hypothesis. *Social Forces,* 63, 4, 996-1009.

Aldrich, H. E. & Waldinger, R. 1990. Ethnicity and entrepreneurship. *Annual Review of Sociology,* 16**,** 111-135.

Alker, H. A. J. 1969. A typology of ecological fallacies. *In:* Dogan, M. & Rokkan, S. (eds.) *Quantitative Ecological Analysis.* Cambridge: MIT Press.

Allison, P. D. 2005. *Fixed effects regression methods for longitudinal data using SAS,* SAS Publishing. http://www2.sas.com/proceedings/sugi31/184-31.pdf [Accessed Date Accessed: 25/06/11].

Allport, G. 1954. *The nature of prejudice,* Reading, MA., Addison-Wesley.

Amato, P. R. 2000. The consequences of divorce for adults and children. *Journal of marriage and family,* 62**,** 1269-1287.

Anderson, E. 1990. *Streetwise: Race, class, and change in an urban community,* Chicago: University of Chicago Press.

Andersson, R. & Musterd, S. 2010. What scale matters? Exploring the relationships between individuals' social position, neighbourhood context and the scale of the neighbourhood. *Geografiska Annaler: Series B, Human Geography,* 92**,** 23-43.

Aspinall, P. 2000. The challenges of measuring the ethno-cultural diversity of Britain in the new millennium. *Policy & Politics,* 28**,** 109-118.

Aspinall, P. 2009. 'Mixed race','mixed origins' or what? Generic terminology for the multiple racial/ethnic group population. *Anthropology Today,* 25**,** 3-8.

Aspinall, P. 2010. Concepts, terminology and classifications for the "mixed" ethnic or racial group in the United Kingdom. *Journal of epidemiology and community health,* 64**,** 557-560.

Atkinson, R. & Kintrea, K. 2001. Disentangling area effects: evidence from deprived and non-deprived neighbourhoods. *Urban Studies,* 38**,** 2277-2298.

Bailey, T. & Waldinger, R. 1991. Primary, secondary, and enclave labor markets: A training systems approach. *American Sociological Review***,** 56, 432-445.

Battu, H. & Sloane, P. 2002. To what extent are ethnic minorities in Britain over-educated? *International Journal of Manpower,* 23**,** 192-208.

BBC News Online. 1993. Recession over - it's official. Available: http://news.bbc.co.uk/onthisday/hi/dates/stories/april/26/newsid_2503000/2503271.stm. [Accessed Date Accessed: 25/06/11].

BBC News Online. 2005. Tories win again against odds. Available: http://news.bbc.co.uk/1/hi/uk_politics/vote_2005/basics/4393317.stm [Accessed Date Accessed: 25/06/11].

Bean, F. D. & Bell-Rose, S. 1999. *Immigration and opportunity: Race, ethnicity, and employment in the United States,* New York: Russell Sage Foundation Publications.

Becker, G. S. 1971. *The economics of discrimination,* Chicago, University of Chicago Press.

Berthoud, R. 2000. Ethnic employment penalties in Britain. *Journal of ethnic and migration studies,* 26**,** 389-416.

Bhopal, R. 1997. Is research into ethnicity and health racist, unsound, or important science? *British Medical Journal,* 314**,** 1751-1756.

Bhopal, R. 2004. Glossary of terms relating to ethnicity and race: for reflection and debate. *British Medical Journal,* 58**,** 441-445.

Blackaby, D., Leslie, D., Murphy, P. & O'leary, N. 2002. White/ethnic minority earnings and employment differentials in Britain: evidence from the LFS. *Oxford Economic Papers,* 54**,** 270-297.

Blanden, J. 2008. Social Mobility: Concepts, Measures and Policies. *Political Quarterly,* 79**,** 57-69.

Blanden, J. 2006. *'Bucking the trend': what enables those who are disadvantaged in childhood to succeed later in life?,* Department for Work and Pensions, Working paper 31 http://research.dwp.gov.uk/asd/asd5/WP31.pdf [Accessed Date Accessed: 25/06/11].

Blanden, J. Goodman, A. Gregg, P. & Machin, S. (2004) *Changes in intergenerational mobility in Britain.* CEEDP, 26. Centre for the Economics of Education, London School of Economics and Political Science, London, UK. http://eprints.lse.ac.uk/19507/ [Date Accessed: 25/06/11]

Blanden, J., Gregg, P. & Machin, S. 2005. Intergenerational Mobility in Europe and North America. A Report Supported by the Sutton Trust. The Sutton Trust.

Blanden, J., Gregg, P. & Macmillan, L. 2006. Explaining intergenerational income persistence: non-cognitive skills, ability and education. *University of Bristol Centre for Market and Public Organisation Working Paper,* 06/146.

Blandy, S. & Lister, D. 2005. Gated communities: (ne)gating community development? *Housing Studies,* 20**,** 287-301.

Blumer, H. 1958. Race prejudice as a sense of group position. *Pacific Sociological Review,* 1**,** 3-7.

Bobo, L. 1999. Prejudice as group position: Microfoundations of a sociological approach to racism and race relations. *Journal of Social Issues,* 55**,** 445-472.

Bobo, L. & Hutchings, V. 1996. Perceptions of racial group competition: Extending Blumer's theory of group position to a multiracial social context. *American Sociological Review,* 61**,** 951-972.

Bolster, A., Burgess, S., Johnston, R., Jones, K., Propper, C. & Sarker, R. 2007. Neighbourhoods, households and income dynamics: a semi-parametric investigation of neighbourhood effects. *Journal of Economic Geography,* 7**,** 1-38.

Bonney, N. & Love, J. 1991. Gender and migration: geographical mobility and the wife's sacrifice. *The Sociological Review,* 39**,** 335-348.

Borjas, G. 1992. Ethnic capital and intergenerational mobility. *The Quarterly Journal of Economics,* 107**,** 123-150.

Borjas, G. 1993. The intergenerational mobility of immigrants. *Journal of Labor Economics,* 11**,** 113-135.

Borjas, G. 1994. Immigrant skills and ethnic spillovers. *Journal of Population Economics,* 7**,** 99-118.

Borjas, G. 1995. Ethnicity, neighborhoods, and human-capital externalities. *The American Economic Review,* 85**,** 365-390.

Borjas, G. 1997. To ghetto or not to ghetto: Ethnicity and residential segregation. *NBER Working Paper***,** 09-01.

Bottero, W. 2005. Interaction distance and the social meaning of occupations. *The Sociological Review,* 53, 56-72

Boyle, P. J., Cooke, T., Halfacree, K. & Smith, D. 1999. Gender inequality in employment status following family migration in GB and the US: the effect of relative occupational status. *International Journal of Sociology and Social Policy,* 19**,** 109-143.

Boyle, P. J., Cooke, T., Halfacree, K. & Smith, D. 2003. The effect of long-distance family migration and motherhood on partnered women's labour-market activity rates in Great Britain and the USA. *Environment and Planning A,* 35**,** 2097-2114.

Boyle, P. J., Feng, Z. & Gayle, V. 2009. A new look at family migration and women's employment status. *Journal of marriage and family,* 71**,** 417-431.

Boyle, P. J., & Dorling, D. 2004. Editorial: the 2001 UK census: remarkable resource or bygone legacy of the 'pen and pencil era'? *Area,* 36**,** 101-110.

Brant, R. 1990. Assessing proportionality in the proportional odds model for ordinal logistic regression. *Biometrics,* 46, 6, 1171-1178

Breen, R. 1997. Inequality, economic growth and social mobility. *British Journal of Sociology***,** 48, 3, 429-449.

Breen, R. & Goldthorpe, J. H. 2001. Class, Mobility and Merit The Experience of Two British Birth Cohorts. *European Sociological Review,* 17**,** 81-101.

Breen, R. & Jonsson, J. 2005. Inequality of opportunity in comparative perspective: recent research on educational attainment and social mobility. *Annual review of sociology,* 31**,** 223-243.

Breen, R. 2004. *Social mobility in Europe,* Oxford: Oxford University Press.

Brooks-Gunn, J., Duncan, G. J. & Aber, J. L. 1997. *Neighborhood poverty: Policy implications in studying neighborhoods,* New York: Russell Sage Foundation Publications.

Brown, B. B. 1990. Peer groups and peer cultures. *In:* Feldman, S. & Elliott, G. (eds.) *At the threshold: The developing adolescent.* Cambridge: Harvard University Press.

Brown, B. B., Clasen, D. R. & Eicher, S. A. 1986. Perceptions of peer pressure, peer conformity dispositions, and self-reported behavior among adolescents. *Developmental Psychology,* 22**,** 521-530.

Buck, N. 2001. Identifying Neighbourhood Effects on Social Exclusion. *Urban Studies,* 38**,** 2251-2275.

Burchardt, T., Le Grand, J. & Piachaud, D. 1999. Social exclusion in Britain 1991—1995. *Social Policy & Administration,* 33**,** 227-244.

Burgess, S. & Briggs, A. 2010. School assignment, school choice and social mobility. *Economics of Education Review,* 29**,** 639-649.

Carmichael, F. & Woods, R. 2000. Ethnic penalties in unemployment and occupational attainment: evidence for Britain. *International Review of Applied Economics,* 14**,** 71-98.

Cartwright, N. 2007. Are RCTs the gold standard? *BioSocieties,* 2**,** 11-20.

Castles, S. & Kosack, G. 1973. *Immigrant workers and class structure in Western Europe,* Oxford: Oxford University Press.

Champion, A. G. 1994. Population change and migration in Britain since 1981: evidence for continuing deconcentration. *Environment and Planning A,* 26**,** 501-520.

Chan, T. W. & Goldthorpe, J. 2004. Is there a status order in contemporary British society? *European Sociological Review,* 20**,** 383-401.

Chan, T. W. & Goldthorpe, J. H. 2007. Class and status: the conceptual distinction and its empirical relevance. *American Sociological Review,* 72**,** 512-532.

Cheshire, P. 2007. *Segregated neighbourhoods and mixed communities: A critical analysis,* York: Joseph Rowntree Foundation.

Clampet-Lundquist, S. & Massey, D. 2008. Neighborhood effects on economic self-sufficiency: A reconsideration of the moving to opportunity experiment. *American journal of sociology***,** 114, 107-143.

Clark, K. & Drinkwater, S. 2000. Pushed out or pulled in? Self-employment among ethnic minorities in England and Wales. *Labour Economics,* 7**,** 603-628.

Clark, K. & Drinkwater, S. 2002. Enclaves, neighbourhood effects and employment outcomes: Ethnic minorities in England and Wales. *Journal of Population Economics,* 15**,** 5-29.

Clark, K. & Drinkwater, S. 2007. Segregation preferences and labour market outcomes. *Economics Letters,* 94**,** 278-283.
Clark, W. A. V. 1991. Residential preferences and neighborhood racial segregation: A test of the Schelling segregation model. *Demography***,** 28, 1, 1-19.
Clark, W. A. V. 2008. Reexamining the moving to opportunity study and its contribution to changing the distribution of poverty and ethnic concentration. *Demography,* 45**,** 515-535.
Clark, W. A. V. & Huang, Y. 2003. The life course and residential mobility in British housing markets. *Environment and Planning A,* 35**,** 323-340.
Cole, I. & Goodchild, B. 2000. Social Mix and the 'Balanced Community' in British housing policy – a tale of two epochs. *GeoJournal,* 51**,** 351-360.
Connor, H. 2001. Deciding for or against participation in higher education: the views of young people from lower social class backgrounds. *Higher Education Quarterly,* 55**,** 204-224.
Cooke, T., Boyle, P., Halfacree, K. & Smith, D. 2001. A cross-national comparison of the impact of family migration on women's employment status. *Demography,* 38**,** 201-213.
Cooke, T. J., Boyle, P., Couch, K. & Feijten, P. 2009. A longitudinal analysis of family migration and the gender gap in earnings in the United States and Great Britain. *Demography,* 46**,** 147-167.
Coombes, M. 1995. Dealing with census geography: principles, practices and possibilities. *In:* Openshaw, S. (ed.) *Census users' handbook.* Cambridge: Geoinformation International. P.111-132.
Crane, J. 1991. The epidemic theory of ghettos and neighborhood effects on dropping out and teenage childbearing. *American Journal of Sociology,* 96**,** 1226-1259.
Crowder, K. 2000. The racial context of white mobility: an individual-level assessment of the white flight hypothesis. *Social Science Research,* 29**,** 223-257.
Currarini, S., Jackson, M. O. & Pin, P. 2009. An economic model of friendship: Homophily, minorities, and segregation. *Econometrica,* 77**,** 1003-1045.
Cutler, D. M. & Glaeser, E. L. 1997. Are Ghettos Good Or Bad? *Quarterly Journal of Economics,* 112**,** 827-872.
Cutler, D. M., Glaeser, E. L. & Vigdor, J. L. 1999. The rise and decline of the American ghetto. *Journal of Political Economy,* 107**,** 456-506.
Cutler, D. M., Glaeser, E. L. & Vigdor, J. L. 2005. Ghettos and the transmission of ethnic capital. *In:* Loury, G. C., Modood, T. & Teles, S. M. (eds.) *Ethnicity, Social Mobility, and Public Policy: Comparing the USA and UK.* Cambridge: Cambridge University Press.
Cutler, D. M., Glaeser, E. L. & Vigdor, J. L. 2008a. Is the melting pot still hot? Explaining the resurgence of immigrant segregation. *The Review of Economics and Statistics,* 90**,** 478-497.
Cutler, D. M., Glaeser, E. L. & Vigdor, J. L. 2008b. When are ghettos bad? Lessons from immigrant segregation in the United States. *Journal of Urban Economics,* 63**,** 759-774.
Dale, A., Lindley, J. & Dex, S. 2006. A life-course perspective on ethnic differences in women's economic activity in Britain. *European Sociological Review,* 22**,** 323-337.
Damm, A. P. & Rosholm, M. 2010. Employment effects of spatial dispersal of refugees. *Review of Economics of the Household,* 8**,** 105-146.
Damm, A. P. 2009. Ethnic Enclaves and Immigrant Labor Market Outcomes: Quasi-Experimental Evidence. *Journal of Labor Economics,* 27**,** 281-314.
Damm, A. P. 2006. Ethnic enclaves and immigrant labour market outcomes: quasi-experimental evidence. http://www.econ.ucl.ac.uk/cream/pages/CDP/AbstrDPS07_06.pdf [Accessed Date Accessed: 25/06/11].
Davey Smith, G. 2000. Learning to live with complexity: ethnicity, socioeconomic position, and health in Britain and the United States. *American Journal of Public Health,* 90**,** 1694-1698.

Deaton, A. 2003. Health, inequality, and economic development. *Journal of Economic Literature*, 41, 1, 113-158.

Dietz, R. D. 2002. The estimation of neighborhood effects in the social sciences: An interdisciplinary approach. *Social Science Research,* 31**,** 539-575.

Diez Roux, A. V., Merkin, S. S., Arnett, D., Chambless, L., Massing, M., Nieto, F. J., Sorlie, P., Szklo, M., Tyroler, H. A. & Watson, R. L. 2001. Neighborhood of residence and incidence of coronary heart disease. *New England Journal of Medicine,* 345**,** 99-106.

DiPrete, T.A. 2002. Life course risks, mobility regimes, and mobility consequences: A comparison of Sweden, Germany, and the United States. *American Journal of Sociology.* 108, 267-309.

Dixon, S. 2003. Migration within Britain for job reasons. *Labour Market Trends,* 111**,** 191-202.

Dorling, D., Smith, G., Noble, M., Wright, G., Burrows, R., Bradshaw, J., Joshi, H., Pattie, C., Mitchell, R. & Green, A. E. 2001. How much does place matter? *Environment and Planning A,* 33**,** 1335–1369.

Downs, A. 1981. *Neighborhoods and Urban Development,* Washington, DC: Brookings Institution.

Duncan, C. & Loretto, W. 2004. Never the Right Age? Gender and Age Based Discrimination in Employment. *Gender, Work & Organization,* 11**,** 95-115.

Duncan, G. J., Yeung, W. J., Brooks-Gunn, J. & Smith, J. R. 1998. How much does childhood poverty affect the life chances of children? *American Sociological Review,* 63**,** 406-423.

Durlauf, S. N. 2004. Neighborhood effects. *In:* Henderson, S. V. & Thisse, J.-F. (eds.) *Handbook of Regional and Urban Economics.* Amsterdam: Elsevier. P.2173-2242

Edin, P., Fredriksson, P. & Åslund, O. 2003. Ethnic Enclaves and the Economic Success of Immigrants-Evidence from A Natural Experiment. *Quarterly Journal of Economics,* 118**,** 329-357.

Edin, P. A., Fredriksson, P. & Lund, O. 2004. Settlement policies and the economic success of immigrants. *Journal of Population Economics,* 17**,** 133-155.

Ellen, I. G. & Turner, M. A. 1997. Does neighborhood matter? Assessing recent evidence. *Housing Policy Debate,* 8**,** 833-866.

Elliott, J. R. 1999. Social Isolation and Labor Market Insulation: Network and Neighborhood Effects on Less-Educated Urban Workers. *The Sociological Quarterly,* 40**,** 199-216.

Ellis, M., Wright, R. & Parks, V. 2004. Work together, live apart? Geographies of racial and ethnic segregation at home and at work. *Annals of the Association of American Geographers,* 94**,** 620-637.

England, P., Allison, P. & Wu, Y. 2007. Does bad pay cause occupations to feminize, Does feminization reduce pay, and How can we tell with longitudinal data? *Social Science Research,* 36**,** 1237-1256.

Entwisle, D. R., Alexander, K. L. & Olson, L. S. 1994. The gender gap in math: Its possible origins in neighborhood effects. *American Sociological Review,* 59**,** 822-838.

Erikson, R. 1984. Social class of men, women and families. *Sociology,* 18**,** 500-514.

Erikson, R. & Goldthorpe, J. 2010. Has social mobility in Britain decreased? Reconciling divergent findings on income and class mobility. *British Journal of Sociology*. 61 (2), 211-230

Ermisch, J. & Francesconi, M. 2001a. *The effects of parents' employment on children's lives,* York: Joseph Rowntree Foundation.

Ermisch, J. & Francesconi, M. 2001b. Family matters: Impacts of family background on educational attainments. *Economica,* 68**,** 137-156.

Esping-Andersen, G. 2004. Untying the Gordian knot of social inheritance. *Inequality: structures, dynamics and mechanisms: essays in honour of Aage B.* London: Elsevier.

Exeter, D., Flowerdew, R. & Boyle, P. J. 2008. Policy implications of pockets of deprivation in Scotland. *In:* Wise, S. & Craglia, M. (eds.) *Innovations in GIS 10: GIS and Evidence-Based Policy Making.* London: Taylor and Francis. p.95-112.

Farley, R., Steeh, C., Krysan, M., Jackson, T. & Reeves, K. 1994. Stereotypes and segregation: Neighborhoods in the Detroit area. *American journal of sociology***,** 100, 3, 750-780.

Farwick, A., Klagge, B. & Taubmannn, W. 2002. Urban Poverty in Germany. *In:* Schnell, I U Ostendorf, W. (eds.) *Studies in Segregation and Desegregation. Aldershot: Ashgate***.** P.133-158.

Feng, Z., Boyle, P., Ham, M. & Raab, G. 2010. Neighbourhood Ethnic Mix and the Formation of Mixed-Ethnic Unions in Britain. *In:* Stillwell, J. (ed.) *Understanding Population Trends and Processes.* London: Springer. p.83-103.

Fieldhouse, E. A. & Gould, M. I. 1998. Ethnic minority unemployment and local labour market conditions in Great Britain. *Environment and Planning A,* 30**,** 833-854.

Fielding, A. J. 1992. Migration and social mobility: South East England as an escalator region. *Regional Studies,* 26**,** 1-15.

Finney, N. & Simpson, L. 2009a. Population dynamics: the roles of natural change and migration in producing the ethnic mosaic. *Journal of ethnic and migration studies,* 35**,** 1479-1496.

Finney, N. & Simpson, L. 2009b. *Sleepwalking to segregation? Challenging myths about race and migration,* Bristol, The Policy Press.

Flowerdew, R. & Green, M. 1992. Developments in areal interpolation methods and GIS. *The Annals of Regional Science,* 26**,** 67-78.

Flowerdew, R., Manley, D. J. & Sabel, C. E. 2008. Neighbourhood effects on health: Does it matter where you draw the boundaries? *Social Science & Medicine*. 66, 6, 1241-1255

Fong, E. & Wilkes, R. 1999. The spatial assimilation model reexamined: An assessment by Canadian data. *International Migration Review,* 33**,** 594-620.

Fordham, S. 1996. *Blacked out: Dilemmas of race, identity, and success at Capital High,* Chicago: University of Chicago Press.

Forrest, R. & Kearns, A. 2001. Social Cohesion, Social Capital and the Neighbourhood. *Urban Studies,* 38**,** 2125-2143.

Frey, W. H. & Liaw, K. L. 1998. Immigrant Concentration and Domestic Migrant Dispersal: Is Movement to Nonometropolitan Areas" White flight"? *The Professional Geographer,* 50**,** 215-232.

Friedrichs, J. 1998. Do poor neighbourhoods make their residents poorer? Context effects of poverty neighbourhoods on residents. *In:* H. Andress. *Empirical poverty research in a comparative perspective***.** Aldershot: Ashgate. p.77-99.

Friedrichs, J., Galster, G. & Musterd, S. 2003. Neighbourhood effects on social opportunities: the European and American research and policy context. *Housing Studies,* 18**,** 797-806.

Galobardes, B., Shaw, M., Lawlor, D., Lynch, J. & Davey Smith, G. 2006a. Indicators of socioeconomic position (part 1). *Journal of epidemiology and community health,* 60**,** 7-12.

Galobardes, B., Shaw, M., Lawlor, D., Lynch, J. & Davey Smith, G. 2006b. Indicators of socioeconomic position (part 2). *Journal of epidemiology and community health,* 60**,** 95-101.

Galster, G. C. 2001. On the nature of neighbourhood. *Urban Studies,* 38**,** 2111-2124.

Galster, G. C. 2007a. Neighbourhood social mix as a goal of housing policy: a theoretical analysis. *European Journal of Housing Policy,* 7**,** 19-43.

Galster, G. C. 2007b. Should policy makers strive for neighborhood social mix? An analysis of the Western European evidence base. *Housing Studies,* 22**,** 523-545.

Galster, G. C. (2010). The Mechanism(s) of Neighborhood Effects: Theory, Evidence, and Policy Implications. Paper presented at the ESRC Seminar: "Neighborhood Effects: Theory & Evidence", St. Andrews University, Scotland, UK. 4-5 February. http://www.clas.wayne.edu/multimedia/usercontent/File/Geography%20and%20Urban%

20Planning/G.Galster/St_AndrewsSeminar-Mechanisms_of_neigh_effects-Galster_2-23-10.pdf [Date Accessed: 01/06/2011]
Galster, G. C., Andersson, R. & Musterd, S. 2010. Who is affected by neighbourhood income mix? Gender, age, family, employment and income differences. *Urban Studies,* 47, 14, 2915-2944.
Galster, G. C., Andersson, R., Musterd, S. & Kauppinen, T. 2008. Does neighborhood income mix affect earnings of adults? New evidence from Sweden. *Journal of Urban Economics,* 63**,** 858-870.
Galster, G. C. 2008. Quantifying the Effect of Neighbourhood on Individuals: Challenges, Alternative Approaches, and Promising Directions. *Schmollers Jahrbuch,* 128**,** 7-48.
Galster, G. C., Metzger, K. & Waite, R. 1999. Neighborhood opportunity structures and immigrants' socioeconomic advancement. *Journal of Housing Research,* 10**,** 95-128.
Garner, C. L. & Raudenbush, S. W. 1991. Neighborhood effects on educational attainment: A multilevel analysis. *Sociology of Education,* 64**,** 251-262.
Gephart, M. A. 1997. Neighborhoods and communities as contexts for development. *In:* Brooks-Gunn, J., Duncan, G. & Aber, J. L. (eds.) *Neighborhood Poverty vol.1: Context and Consequences for Children.* New York: Russell Sage Foundation. p.1-43.
Gibbons, S. & Telhaj, S. 2007. Are schools drifting apart? Intake stratification in English secondary schools. *Urban Studies,* 44**,** 1281-1305.
Giddens, A. 2009. *Sociology [6th Edition],* Cambridge: Polity Press.
Gilbertson, G. A. 1995. Women's labor and enclave employment: the case of Dominican and Colombian women in New York City. *International Migration Review,* 29, 3, 657-670.
Glaeser, E. L., & Scheinkman, J. 2001. Measuring social interactions. *In:* S.N. Durlauf & H.P. Young. *Social dynamics***.** Washington DC: Brookings Institution. p.83-132.
Glaeser, E. L., Laibson, D. & Sacerdote, B. 2002. An economic approach to social capital. *Economic Journal,* 112, 438, 437-458.
Glass, D. V. 1963. *Social Mobility in Britain,* Taylor & Francis.
Goldstein, H. 2003. *Multilevel Statistical Methods,* London: Edward Arnold.
Goldthorpe, J. H., & Hope, K. 1974. *The social grading of occupations: A new approach and scale*, Oxford: Clarendon Press.
Goldthorpe, J. H., & Jackson, M. 2007. Intergenerational class mobility in contemporary Britain: political concerns and empirical findings. *The British journal of sociology,* 58**,** 525-546.
Goldthorpe, J. H., Llewellyn, C. & Payne, C. 1987. *Social mobility and class structure in modern Britain*, Oxford: University Press, USA.
Goldthorpe, J. H., & McKnight, A. 2006. The economic basis of social class. *In:* Morgan, S.L. Grusky, D.B. & Fields, G.S. *Mobility and Inequality: Frontiers of Research from Sociology and Economics,* Stanford, Stanford University Press.
Goldthorpe, J. H., & Mills, C. 2008. Trends in Intergenerational Class Mobility in Modern Britain: Evidence From National Surveys, 1972—2005. *National Institute Economic Review,* 205, 1, 83-100.
Goldthorpe, J. H., & Payne, C. 1986. On the class mobility of women: Results from different approaches to the analysis of recent British data. *Sociology,* 20**,** 531-535.
Gordon, R. J. 2002. *Technology and economic performance in the American economy*. Cambridge: National Bureau of Economic Research (NBER).
Gorard, S. (2008). Research impact is not always a good thing: a re-consideration of rates of 'social mobility'in Britain. *British Journal of Sociology of Education*, 29(3), 317-324.
Gracia, E. & Herrero, J. 2007. Perceived neighborhood social disorder and attitudes toward reporting domestic violence against women. *Journal of interpersonal violence,* 22**,** 737.
Graham, E., Manley, D., Hiscock, R., Boyle, P. & Doherty, J. 2009. Mixing Housing Tenures: Is it Good for Social Well-being? *Urban Studies,* 46**,** 139-165.
Granovetter, M. 1973. The strength of weak ties. *American journal of sociology,* 78**,** 1360-1380.

Granovetter, M. 1985. Economic action and social structure: the problem of embeddedness. *American Journal of Sociology,* 91**,** 481-510.
Green, F. & Mcintosh, S. 2007. Is there a genuine under-utilization of skills amongst the over-qualified? *Applied Economics,* 39**,** 427-439.
Greenland, S. 2000. An introduction to instrumental variables for epidemiologists. *International Journal of Epidemiology,* 29**,** 722-729.
Gutman, L. M. & Feinstein, L. 2010. Parenting behaviours and children's development from infancy to early childhood: changes, continuities and contributions. *Early Child Development and Care,* 180**,** 535-556.
Hallman, H. W. 1984. *Neighborhoods: Their Place in Urban Life,* Beverly Hills: Sage Publications.
Hattersley, L., and Creeser, R. (1995) *The longitudinal study, 1971-1991: history, organisation and quality of data*. London: HMSO.
Haynes, R. & Gale, S. 2000. Deprivation and poor health in rural areas: inequalities hidden by averages. *Health & Place,* 6**,** 275-285.
Healey, J. F. 2005. *Race, ethnicity, gender, and class: The sociology of group conflict and change,* Thousand Oaks: Pine Forge Press.
Heath, A. F., McMahon, D. & Roberts, J. 2000. Ethnic Differences in the Labour Market: A Comparison of the Sample of Anonymized Records and Labour Force Survey. *Journal of the Royal Statistical Society. Series A (Statistics in Society)***,** 163, 3, 341-361.
Heath, A. F., Rothon, C. & Kilpi, E. 2008a. The second generation in Western Europe: Education, unemployment, and occupational attainment. *Annual Review of Sociology,* 34**,** 211-235.
Heath, A. F. & Smith, S. 2003. Mobility and ethnic minorities. *New Economy,* 10**,** 199-204.
Heath, A. F. & Cheung, S. Y. 2007. *Unequal chances: ethnic minorities in Western labour markets,* Oxford, Oxford University Press.
Heath, A. F. & Mcmahon, D. 2005. Social mobility of ethnic minorities. *In:* Loury, G. C., Modood, T. & Teles, S. M. (eds.) *Ethnicity, Social Mobility, and Public Policy: Comparing the USA and UK.* Cambridge: Cambridge University Press.
Heath, A. F., Rothon, C. & Kilpi, E. 2008. The Second Generation in Western Europe: Education, Unemployment, and Occupational Attainment. *Annual Review of Sociology.* 34, 211-235.
Heckman, J. J. & Smith, J. A. 1995. Assessing the case for social experiments. *The Journal of Economic Perspectives***,** 9,2, 85-110.
Henderson, J. & Karn, V. 1984. Race, class and the allocation of public housing in Britain. *Urban Studies,* 21**,** 115-128.
Henderson, J. & Karn, V. 1987. *Race, class and state housing,* Aldershot: Gower.
Hosmer, D. W. & Lemeshow, S. 2000. *Applied logistic regression*, New York: Wiley-Interscience.
Hughes, B. & Cooke, G. 2007. *Children, parenting and families: renewing the progressive story. Politics for a New Generation,* Basingstoke: Palgrave Macmillan.
Hylton, C. 1999. *African-Caribbean community organisations: the search for individual and group identity,* Stoke-on-Trent: Trentham Books.
Ihlanfeldt, K. R. & Sjoquist, D. L. 1998. The spatial mismatch hypothesis: a review of recent studies and their implications for welfare reform. *Housing policy debate,* 9**,** 849-892.
Ioannides, Y. & Loury, D. 2004. Job information networks, neighborhood effects, and inequality. *Journal of Economic Literature,* 42**,** 1056-1093.
Isaacs, J., Sawhill, I. & Haskins, R. 2008. *Getting Ahead or Losing Ground: Economic Mobility in America*. Washinton DC: Brookings Institution
Jackson, M., Erikson, R., Goldthorpe, J. H. & Yaish, M. 2007. Primary and secondary effects in class differentials in educational attainment. *Acta Sociologica,* 50**,** 3, 211-229.

Jencks, C. & Mayer, S. 1990. The Social Consequences of Growing Up in a Poor Neighborhood. *In:* Lynn, L. E. & Mcgeary, M. F. H. (eds.) *Inner-city poverty in the United States.* Washington DC: National Academy Press. p.111-186.

Johnston, R., Forrest, J. & Poulsen, M. 2002a. Are there ethnic enclaves/ghettos in English cities? *Urban Studies,* 39**,** 591-618.

Johnston, R., Forrest, J. & Poulsen, M. 2002b. The ethnic geography of EthniCities. *Ethnicities,* 2, 209- 235.

Johnston, R., Poulsen, M. & Forrest, J. 2005a. On the measurement and meaning of residential segregation: a response to Simpson. *Urban Studies,* 42**,** 1221-1227.

Johnston, R., Propper, C., Sarker, R., Jones, K., Bolster, A. & Burgess, S. 2005b. Neighbourhood social capital and neighbourhood effects. *Environment and Planning A,* 37**,** 1443-1459.

Jones, K. 1991. Specifying and estimating multi-level models for geographical research. *Transactions of the Institute of British Geographers,* 16**,** 148-159.

Jones, K., Johnston, R. & Pattie, C. 1992. People, places and regions: exploring the use of multi-level modelling in the analysis of electoral data. *British Journal of Political Science,* 22**,** 343-380.

Kain, J. 1968. Housing segregation, negro employment and metropolitan decentralization. *Quarterly Journal of Economics,* 82**,** 175-197.

Kain, J. F. 1992. The spatial mismatch hypothesis: three decades later. *Housing policy debate,* 3**,** 371-460.

Kam, V. (1997). *Ethnicity in the 1991 Census (Volume 4): Employment, education and housing among the ethnic minority populations of Britain: Employment, Education and Ethnic Minority Populations of Great Britain*. London: The Office for National Statistics.

Kaplan, D. H. & Holloway, S. R. 2001. Scaling ethnic segregation: causal processes and contingent outcomes in Chinese residential patterns. *GeoJournal,* 53**,** 59-70.

Kawachi, I., Daniels, N., & Robinson, D.E. 2005. Health disparities by race and class: why both matter. *Health Affairs,* 24, 3430352.

Kearns, A. & Parkinson, M. 2001. The significance of neighbourhood. *Urban Studies,* 38**,** 2103-2110.

Keels, M., Duncan, G. J., Deluca, S., Mendenhall, R. & Rosenbaum, J. 2005. Fifteen Years Later: Can Residential Mobility Programs Provide a Long-Term Escape from Neighborhood Segregation, Crime, and Poverty? *Demography***,** 42, 1, 51-73.

Khattab, N., Johnston, R., Sirkeci, I. & Modood, T. 2010. The Impact of Spatial Segregation on the Employment Outcomes Amongst Bangladeshi Men and Women in England and Wales. *Sociological Research Online,* 15**,** 3.

Kieselbach, T. 2003. Long-term unemployment among young people: the risk of social exclusion. *American Journal of Community Psychology,* 32**,** 69-76.

Kling, J., Kessler, R., Ludwig, J., Sanbonmatsu, L., Liebman, J., Duncan, G. & Katz, L. 2008. What Can We Learn about Neighborhood Effects from the Moving to Opportunity Experiment? *American journal of sociology,* 114**,** 144-188.

Kling, J., Liebman, J. & Katz, L. 2007. Experimental analysis of neighborhood effects. *Econometrica,* 75**,** 83-119.

Kling, J. R., Liebman, J. B., Katz, L. F., Sanbonmatsu, L. & Center, L. 2004. Moving to opportunity and tranquility: Neighborhood effects on adult economic self-sufficiency and health from a randomized housing voucher experiment. KSG Working Paper No. RWP04-035 http://web.hks.harvard.edu/publications/getFile.aspx?Id=135 [Date Accessed: 14/09/2011]

Kling, J. R., Ludwig, J. & Katz, L. F. 2005. Neighborhood Effects on Crime for Female and Male Youth: Evidence From a Randomized Housing Voucher Experiment. *Quarterly Journal of Economics,* 120**,** 87-130.

Knies, G., Burgess, S. & Propper, C. 2006. Keeping up with the Schmidts. *An empirical test of the relative deprivation theory on the basis of the German Socio-Economic Panel Study*. http://www.iser.essex.ac.uk/publications/working-papers/iser/2007-19.pdf [Date accessed: 14/09/2011]

Kohl, H. R. 1994. *"I won't learn from you" and other thoughts on creative maladjustment,* New York: New Press.

Lam, V. & Smith, G. 2009. African and Caribbean adolescents in Britain: ethnic identity and Britishness. *Ethnic and Racial Studies,* 32**,** 1248-1270.

Leventhal, T. & Brooks-Gunn, J. 2000. The neighborhoods they live in: The effects of neighborhood residence on child and adolescent outcomes. *Psychological Bulletin,* 126**,** 309-337.

Leventhal, T. & Brooks-Gunn, J. 2004. A Randomized Study of Neighborhood Effects on Low-Income Children's Educational Outcomes. *Developmental Psychology,* 40**,** 488-507.

Li, Y. & Heath, A. 2008. Minority ethnic men in British labour market (1972-2005). *International Journal of Sociology and Social Policy,* 28**,** 231-244.

Lieberson, S. 1980. *A piece of the pie,* Berkeley: University of California Press.

Lin, N. 1999. Social networks and status attainment. *Annual Review of Sociology,* 25**,** 467-487.

Lin, N. 2001. *Social Capital: A Theory of Social Structure and Action,* Cambridge, Cambridge University Press.

Lin, N. & Ensel, W. M. & Vaughn, J. C. 1981. Social Resources and Strength of Ties: Structural Factors in Occupational Status Attainment. *American Sociological Review,* 46**,** 393-405.

Lin, N., Vaughn, J. C. & Ensel, W. M. 1981. Social Resources and Occupational Status Attainment. *Social Forces,* 59**,** 1163-81.

Lindley, J. 2009. The over-education of UK immigrants and minority ethnic groups: evidence from the Labour Force Survey. *Economics of Education Review,* 28**,** 80-89.

Lindley, J., Dale, A. & Dex, S. 2006. Ethnic differences in women's employment: the changing role of qualifications. *Oxford Economic Papers,* 58**,** 351-378.

Loury, G., Modood, T. & Teles, S. 2005. *Ethnicity, social mobility and public policy: comparing the USA and UK,* Cambridge: Cambridge University Press.

Lovett, A. & Flowerdew, R. 1989. Analysis of count data using poisson regression. *The Professional Geographer,* 41**,** 190-198.

Ludwig, J., Liebman, J. B., Kling, J. R., Duncan, G. J., Katz, L. F., Kessler, R. C. & Sanbonmatsu, L. 2008. What Can We Learn about Neighborhood Effects from the Moving to Opportunity Experiment? *American Journal of Sociology,* 114**,** 144-188.

Macintyre, S., Maciver, S. & Sooman, A. 1993. Area, class and health: should we be focusing on places or people? *Journal of Social Policy,* 22**,** 213-234.

Maldonado, G. & Greenland, S. 2002. Estimating causal effects. *International Journal of Epidemiology*. 31, 422-429.

Malpass, P. & Murie, A. 1994. *Housing policy and practice,* London: Macmillan Press.

Manski, C. F. 1993. Identification of endogenous social effects: The reflection problem. *The Review of Economic Studies***,** 60, 531-542.

Manski, C. F. 2000. Economic analysis of social interactions. *The Journal of Economic Perspectives,* 14**,** 115-136.

Margo, J. & Dixon, M. 2006. *Freedom's Orphans: Raising Youth in a Changing World,* London: Institute for Public and Policy Research.

Martin, D. 1992. Postcodes and the 1991 Census of Population: issues, problems and prospects. *Transactions of the Institute of British Geographers***,** 17, 350-357.

Martin, D. 2000. Towards the geographies of the 2001 UK Census of Population. *Transactions of the Institute of British Geographers,* 25**,** 321-332.

Martin, D., Brigham, P., Roderick, P., Barnett, S. & Diamond, I. 2000. The (mis) representation of rural deprivation. *Environment and Planning A,* 32**,** 735-752.

Massey, D. S. & Denton, N. 1988. The dimensions of residential segregation. *Social Forces,* 67**,** 281-315.
Massey, D. S. & Denton, N. 1993. *American apartheid: Segregation and the making of the underclass,* Harvard University Press.
Massey, D. S. 1985. Ethnic residential segregation: A theoretical synthesis and empirical review. *Sociology and Social Research,* 69**,** 315-350.
Massey, D. S. 1990. American apartheid: Segregation and the making of the underclass. *American Journal of Sociology***,** 96, 329-357.
Massey, D. S. & Denton, N. A. 1985. Spatial assimilation as a socioeconomic outcome. *American Sociological Review***,** 50, 94-106.
Mayer, K.U. and Carroll, G.R. 1987. Jobs and classes: structural constraints on career mobility. *European Sociological Review.* 3, 1, 14-38
Mayer, K.U. 2009. New directions in life course research. *Annual Review of Sociology.* 35, 413-433
McCulloch, A. 2001. Ward-level deprivation and individual social and economic outcomes in the British Household Panel Study. *Environment and Planning A,* 33**,** 667-684.
McDowell, L. & Sharp, J. P. 1999. *A feminist dictionary of human geography,* London: Hodder Headline Group.
McPherson, M., Smith-Lovin, L. & Cook, J. 2001. Birds of a feather: Homophily in social networks. *Annual review of sociology,* 27**,** 415-444.
Mendenhall, R., Deluca, S. & Duncan, G. 2006. Neighborhood resources, racial segregation, and economic mobility: Results from the Gautreaux program. *Social Science Research,* 35**,** 892-923.
Miles, R. 1982. *Racism and migrant labour,* London: Routledge & Kegan Paul Books.
Miller, H. J. 2004. Tobler's first law and spatial analysis. *Annals of the Association of American Geographers,* 94**,** 284-289.
Modood, T., Berthoud, R., Lakey, J., Nazroo, J., Smith, P., Virdee, S. & Beishon, S. 1997. *Ethnic minorities in Britain: diversity and disadvantage,* London: Policy Studies Institute.
Mollica, K. A., Gray, B. & Trevino, L. K. 2003. Racial homophily and its persistence in newcomers' social networks. *Organization Science***,** 14, 123-136.
Morphet, C. 1993. The mapping of small-area census data-a consideration of the role of enumeration district boundaries. *Environment and Planning A,* 25**,** 1267-1267.
Morris, D. & Hess, K. 1975. *Neighborhood Power,* Boston, Beacon Press.
Mouw, T. 2002. Are black workers missing the connection? The effect of spatial distance and employee referrals on interfirm racial segregation. *Demography***,** 507-528.
Mulder, C. H. & Van Ham, M. 2005. Migration histories and occupational achievement. *Population, Space and Place,* 11**,** 173-186.
Musterd, S. 2005. Social and ethnic segregation in Europe: levels, causes, and effects. *Journal of Urban Affairs,* 27**,** 331-348.
Musterd, S. & Andersson, R. 2005. Housing mix, social mix, and social opportunities. *Urban Affairs Review,* 40**,** 761.
Musterd, S. & Andersson, R. 2006. Employment, social mobility and neighbourhood effects: the case of Sweden. *International Journal of Urban and Regional Research,* 30**,** 120-140.
Musterd, S., Andersson, R., Galster, G. & Kauppinen, T. 2008. Are immigrants' earnings influenced by the characteristics of their neighbours? *Environment and Planning A,* 40**,** 785-805.
Musterd, S., Ostendorf, W. & De Vos, S. 2003. Neighbourhood effects and social mobility: a longitudinal analysis. *Housing Studies,* 18**,** 877-892.
Nagel, C. R. 2002. Constructing difference and sameness: the politics of assimilation in London's Arab communities. *Ethnic and Racial Studies,* 25**,** 258-287.

Noden, P. 2000. Rediscovering the impact of marketisation: dimensions of social segregation in England's secondary schools, 1994-99. *British Journal of Sociology of Education,* 21**,** 371-390.

Norman, P., Rees, P. & Boyle, P. 2003. Achieving data compatibility over space and time: creating consistent geographical zones. *International Journal of Population Geography,* 9**,** 365-386.

Oakes, J. M. 2004. The (mis) estimation of neighborhood effects: causal inference for a practicable social epidemiology. *Social Science & Medicine,* 58**,** 1929-1952.

Oakes, J. M. & Johnson, P. J. 2006. Propensity score matching for social epidemiology. *In:* Oakes, J. M. & Kaufman, J. S. (eds.) *Methods in social epidemiology.* San Francisco: Jossey-Bass.

Office for National Statistics. (2012). The National Statistics Socio-Economic Classification. Date Accessed: 25/02/2012, from http://www.ons.gov.uk/ons/guide-method/classifications/current-standard-classifications/soc2010/soc2010-volume-3-ns-sec--rebased-on-soc2010--user-manual/index.html.

Openshaw, S. 1984a. Ecological fallacies and the analysis of areal census data. *Environment and Planning A,* 16**,** 17-31.

Openshaw, S. 1984b. The modifiable areal unit problem *Concepts and Techniques in Modern Geography No.28.* Geo Books Norwich.

Openshaw, S. & Taylor, P. J. 1981. The modifiable areal unit problem. *Quantitative geography: A British view***,** 60-69.

Oreopoulos, P. 2003. The Long-Run Consequences of Living in a Poor Neighborhood. *Quarterly Journal of Economics,* 118**,** 1533-1575.

Oreopoulos, P. 2008. Neighbourhood effects in Canada: A critique. *Canadian Public Policy,* 34**,** 237-258.

Orr, L., Feins, J. D., Jacob, R., Beecroft, E., Sanbonmatsu, L., Katz, L. F., Liebman, J. B. & Kling, J. R. 2003. Moving to opportunity interim impacts evaluation. *Washington, DC: US Department of Housing and Urban Development.* http://www.abtassociates.com/reports/2003302754569_71451.pdf [Date Accessed: 14/09/2011]

Ostendorf, W., Musterd, S. & De Vos, S. 2001. Social mix and the neighbourhood effect. Policy ambitions and empirical evidence. *Housing Studies,* 16**,** 371-380.

Park, R. E. 1914. Racial assimilation in secondary groups with particular reference to the Negro. *The American Journal of Sociology,* 19**,** 606-623.

Payne, G. 2007. Social divisions, social mobilities and social research: Methodological issues after 40 years. *Sociology,* 41**,** 901-915.

Payne, G. & Abbott, P. 1990. *The Social Mobility of Women,* Basingstoke: The Falmer Press.

Payne, G. & Roberts, J. 2002. Opening and closing the gates: recent developments in male social mobility in Britain. *Sociological Research Online,* 6, 4 http://www.socresonline.org.uk/6/4/payne.html [Date Accessed: 14/09/2011]

Peach, C. 1968. *West Indian migration to Britain: a social geography,* Oxford: Oxford University Press.

Peach, C. 1996a. Does Britain have ghettos? *Transactions of the Institute of British Geographers***,** 216-235.

Peach, C. 1996b. Good segregation, bad segregation. *Planning perspectives,* 11**,** 379-398.

Peach, C. 1996c. The meaning of segregation. *Planning Practice and Research,* 11**,** 137-150.

Peach, C. 1997. Pluralist and assimilationist models of ethnic settlement in London 1991. *Tijdschrift voor economische en sociale geografie,* 88**,** 120-134.

Peach, C. 1998. South Asian and Caribbean ethnic minority housing choice in Britain. *Urban Studies,* 35**,** 1657-1680.

Peach, C. 2005a. The Ghetto and the Ethnic Enclave. *In:* Varady, D. P. (ed.) *Desegregating the city: ghettos, enclaves, and inequality.* New York: State University of New York Press.
Peach, C. 2005c. Social integration and social mobility: spatial segregation and intermarriage of the Caribbean population in Britain. *In:* Loury, G. C., Modood, T. & Teles, S. M. (eds.) *Ethnicity, Social Mobility and Public Policy: Comparing the US and UK,* Cambridge: Cambridge University Press.
Peach, C. 2006a. Islam, ethnicity and South Asian religions in the London 2001 census. *Transactions of the Institute of British Geographers,* 31**,** 353-370.
Peach, C. 2006b. Muslims in the 2001 Census of England and Wales: Gender and economic disadvantage. *Ethnic and Racial Studies,* 29**,** 629-655.
Peach, C. 2007. Sleepwalking into ghettoisation? The British debate over segregation. *Residential Segregation and the Integration of Immigrants: Britain, the Netherlands and Sweden,*
Peach, C. 2009. Slippery segregation: discovering or manufacturing ghettos? *Journal of ethnic and migration studies,* 35**,** 1381-1395.
Peach, C. & Gale, R. 2003. Muslims, Hindus, and Sikhs in the new religious landscape of England. *Geographical review,* 93**,** 469-490.
Pemberton, S. 2009. Economic Migration from the EU'A8'Accession Countries and the Impact on Low-demand Housing Areas: Opportunity or Threat for Housing Market Renewal Pathfinder Programmes in England? *Urban Studies,* 46**,** 1363-1384.
Permentier, M., Van Ham, M. & Bolt, G. 2007. Behavioural responses to neighbourhood reputations. *Journal of Housing and the Built Environment,* 22**,** 199-213.
Pettigrew, T. 1998. Intergroup contact theory. *Annual review of psychology,* 49, 65-85.
Pettigrew, T. 2008. Future directions for intergroup contact theory and research. *International Journal of Intercultural Relations,* 32**,** 187-199.
Pettigrew, T. & Tropp, L. 2006. A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology,* 90**,** 751-783.
Phillips, D. 1998. Black minority ethnic concentration, segregation and dispersal in Britain. *Urban Studies,* 35**,** 1681-1702.
Phillips, D. 2006. Parallel lives? Challenging discourses of British Muslim self-segregation. *Environment and Planning D: Society and Space,* 24**,** 25-40.
Pieterse, J. N. 1997. Deconstructing/reconstructing ethnicity. *Nations and Nationalism,* 3**,** 365-395.
Platt, L. 2005a. The intergenerational social mobility of minority ethnic groups. *Sociology,* 39**,** 445-461.
Platt, L. 2005b. *Migration and social mobility: The life chances of Britain's minority ethnic communities*, Policy Pr.
Platt, L. 2005c. New Destinations? Assessing the Post-migration Social Mobility of Minority Ethnic Groups in England and Wales. *Social Policy & Administration,* 39**,** 697-721.
Platt, L. 2006. Moving up? Intergenerational social class mobility in England and Wales and the impact of ethnicity, migration and religious affiliation. *Conference on Immigration: Impacts, integration and intergenerational issues to be held at UCL, 29-31 March 2006.*
Platt, L. 2007. Making education count: the effects of ethnicity and qualifications on intergenerational social class mobility. *Sociological Review,* 55**,** 485-508.
Platt, L., Simpson, L. & Akinwale, B. 2005. Stability and change in ethnic groups in England and Wales. *Population Trends,* 121**,** 35-46.
Popkin, S., Rosenbaum, J. & Meaden, P. 1993. Labor market experiences of low income black women in middle class suburbs: Evidence from a survey of gautreaux program participants. *Journal of Policy Analysis and Management,* 12**,** 556-573.
Portes, A. 1998. Social capital: its origins and applications in modern sociology. *Annual review of sociology,* 24**,** 1-24.

Portes, A. & Jensen, L. 1992. Disproving the enclave hypothesis: Reply. *American Sociological Review,* 57: 418-420.
Portes, A. & Landolt, P. 1996. The Downside of Social Capital. *The American Prospect,* 26**,** 18-21.
Portes, A. & Manning, R. 2005. 'The Immigrant Enclave: Theory and Empirical Examples. *In:* Lin, J. & Mele, C. *The urban sociology reader,* New York: Routledge.
Portes, A. & Zhou, M. 1992. Gaining the upper hand: economic mobility among immigrant and domestic minorities. *Ethnic and Racial Studies,* 15**,** 491-491.
Portes, A. & Zhou, M. 1993. The new second generation: Segmented assimilation and its variants. *The Annals of the American Academy of Political and Social Science***,** 530, 1, 74-96.
Propper, C., Burgess, S., Bolster, A., Leckie, G., Jones, K. & Johnston, R. 2007. The Impact of Neighbourhood on the Income and Mental Health of British Social Renters. *Urban Studies,* 44**,** 393-415.
Putnam, R. D. 2007. E Pluribus Unum: Diversity and community in the twenty-first century the 2006 Johan Skytte prize lecture. *Scandinavian Political Studies,* 30**,** 137-174.
Ram, M., Edwards, P. & Jones, T. 2007. Staying Underground: Informal Work, Small Firms, and Employment Regulation in the United Kingdom. *Work and Occupations,* 34**,** 318-344.
Reardon, S. F. & Firebaugh, G. 2002a. Measures of multigroup segregation. *Sociological Methodology,* 32**,** 33-67.
Reardon, S. F. & Firebaugh, G. 2002b. Response: Segregation and social distance—A generalized approach to segregation measurement. *Sociological Methodology,* 32**,** 85-101.
Reardon, S. F. & O'Sullivan, D. 2004. Measures of spatial segregation. *Sociological Methodology,* 34**,** 121-162.
Reardon, S. F., Farrell, C. R., Matthews, S. A., O'Sullivan, D., Bischoff, K. & Firebaugh, G. 2009. Race and space in the 1990s: changes in the geographic scale of racial residential segregation, 1990-2000. *Social Science Research,* 38**,** 55-70.
Reay, D. 2004. 'Mostly Roughs and Toughs': Social Class, Race and Representation in Inner City Schooling. *Sociology,* 38**,** 1005-1023.
Reay, D. 2006. The zombie stalking English schools: social class and educational inequality. *British Journal of Educational Studies,* 54**,** 288-307.
Rees, P. & Butt, F. 2004. Ethnic change and diversity in England, 1981–2001. *Area,* 36**,** 174-186.
Reskin, B. F. & Roos, P. A. 1990. *Job queues, gender queues: Explaining women's inroads into male occupations,* Philadelphia: Temple University Press.
Reynolds, T. 2001. Black mothering, paid work and identity. *Ethnic and Racial Studies,* 24**,** 1046-1064.
Robinson, V. 1980. Correlates of Asian immigration to Britain, 1959-74. *New Community,* 8**,** 115-123.
Robinson, W. S. 1950. Ecological correlations and the behaviour of individuals. *American Sociological Review,* 15**,** 351-357.
Rose, D. 1998. Once More unto the Breach: In Defence of Class Analysis Yet Again. *Work, Employment and Society,* 12**,** 755-767.
Rosen, B. 1959. Race, Ethnicity, and the Achievement Syndrome. *American Economic Review,* 24**,** 47-60.
Rosenbaum, J. 1995a. Changing the geography of opportunity by expanding residential choice: Lessons from the Gautreaux Program. *Housing Policy Debate,* 6**,** 231-269.
Rosenbaum, J. E. & Deluca, S. 2000. Is Housing Mobility the Key to Welfare Reform? *Brookings Institution, Washington, DC.*
Ross, C. E., Mirowsky, J. & Pribesh, S. 2001. Powerlessness and the amplification of threat: Neighborhood disadvantage, disorder, and mistrust. *Amerian Sociological Review***,** 66, 568-591.

Rowlingson, K. & Mckay, S. 2005. Lone motherhood and socio economic disadvantage: insights from quantitative and qualitative evidence. *The Sociological Review,* 53**,** 30-49.

Rubinowitz, L. S. & Rosenbaum, J. E. 2002. *Crossing the class and color lines: From public housing to white suburbia*, Chicago: University of Chicago Press.

Sampson, R. J. 2008. Moving to Inequality: Neighborhood Effects and Experiments Meet Social Structure. *American Journal of Sociology,* 114**,** 189-231.

Sampson, R. J. & Sharkey, P. 2008. Neighborhood selection and the social reproduction of concentrated racial inequality. *Demography,* 45**,** 1-29.

Sampson, R. J. 2003. The neighborhood context of well-being. *Perspectives in Biology and Medicine,* 46**,** 53-64.

Sampson, R. J., Morenoff, J. D. & Gannon-Rowley, T. 2002. Assessing Neighbourhood Effects: Social Processes and New Directions in Research. *Annual Review of Sociology,* 28**,** 443-478.

Sampson, R. J. & Raudenbush, S. W. 2004. Seeing Disorder: neighborhood stigma and the social construction of" broken windows". *Social Psychology Quarterly***,** 67, 319-342.

Sampson, R. J., Raudenbush, S. W. & Earls, F. 1997. Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science,* 277**,** 918-924.

Sanbonmatsu, L., Kling, J. R., Duncan, G. J. & Brooks-Gunn, J. 2006. Neighborhoods and academic achievement: Results from the Moving to Opportunity Experiment. *Journal of Human Resources,* 41**,** 649-691.

Savage, M. 1988. The missing link? The relationship between spatial mobility and social mobility. *British Journal of Sociology***,** 39, 4, 554-577.

Schelling, T. C. 1971. Dynamic models fo segregation. *Journal of Mathematical Sociology,* 1**,** 146–186.

Senior, P. A. & Bhopal, R. 1994. Ethnicity as a variable in epidemiological research. *British Medical Journal,* 309**,** 327-330.

Sharkey, P. 2008. The Intergenerational Transmission of Context. *American Journal of Sociology,* 113**,** 931-969.

Simpson, L. 2004. Statistics of racial segregation: measures, evidence and policy. *Urban Studies,* 41**,** 661-681.

Simpson, L. 2007. Ghettos of the mind: the empirical behaviour of indices of segregation and diversity. *Journal of the Royal Statistical Society: Series A (Statistics in Society),* 170**,** 405-424.

Simpson, L. & Finney, N. 2009. Ethnic ghettos in Britain: a fact or a myth? *Significance,* 6**,** 72-75.

Simpson, L., Purdam, K., Tajar, A., Pritchard, J. & Dorling, D. 2009. Jobs deficits, neighbourhood effects, and ethnic penalties: the geography of ethnic-labour-market inequality. *Environment and Planning A,* 41**,** 946-963.

Smith, C. J. 1995. Asian New York: The geography and politics of diversity. *International Migration Review***,** 29, 1, 59-84.

Smith, J. P. 2001. Race and ethnicity in the labor market: Trends over the short and long term. *America becoming: Racial trends and their consequences,* 2**,** 52-57.

Smith, P. & Prior, G. 1996. The fourth National Survey of Ethnic Minorities Technical report. http://www.opengrey.eu/item/display/10068/419956 [Date Accessed: 14/09/2011]

Smits, J. 2001. Career migration, self-selection and the earnings of married men and women in the Netherlands, 1981-93. *Urban Studies,* 38**,** 541-562.

Solon, G. 1999. *Intergenerational mobility in the labor market,* Amsterdam: North Holland.

Sowell, T. 1978. *Three black histories. Essays and data on American ethnic groups,* Washington DC: The Urban Institute.

Stenning, A. & Dawley, S. 2009. Poles To Newcastle: Grounding New Migrant Flows in Peripheral Regions. *European Urban and Regional Studies,* 16**,** 273-294.

Stewman, S., & Konda, S.L. 1983. Careers and organizational labor markets: demographic models of organizational behavior. *American Journal of Sociology.* 88, 637-685.

Stillwell, J. & Phillips, D. 2006. Diversity and change: understanding the ethnic geographies of Leeds. *Journal of ethnic and migration studies,* 32**,** 1131-1152.

Subramanian, S. V., Jones, K., Kaddour, A. & Krieger, N. 2009. Revisiting Robinson: The perils of individualistic and ecologic fallacy. *International Journal of Epidemiology,* 38**,** 342-360.

Sullivan, A. & Whitty, G. 2005. Social inequalities and education policy in England. *In:* Delorenzi, S., Reed, J. & Robinson, P. (eds.) *Maintaining momentum: Promoting social mobility and life chances from early years to adulthood.* London: Institute for Public Policy Research.

Tobler, W. 1970. A computer movie simulating urban growth in the Detroit region. *Economic Geography,* 46**,** 234-240.

Townsend, P. 1987. Deprivation. *Journal of Social Policy,* 16**,** 125-146.

Tropp, L. & Pettigrew, T. 2005. Relationships between intergroup contact and prejudice among minority and majority status groups. *Psychological Science,* 16**,** 951-957.

Tseng, Y. F. 1995. Beyond" little taipei": The development of taiwanese immigrant businesses in los angeles. *International Migration Review***,** 29, 1, 33-58.

Turney, K., Clampet-Lundquist, S., Edin, K., Kling, J. R. & Duncan, G. J. 2006. Neighborhood Effects on Barriers to Employment: Results from a Randomized Housing Mobility Experiment in Baltimore. *Brookings Wharton Papers on Urban Affairs,* 137-187

UCLA: Academic Technology Services. 2009. *Analyzing Correlated (Clustered) Data* [Online]. Available: http://www.ats.UCLA.edu/stat/stata/library/cpsu.htm [Accessed 10.10.09].

Urban, S. 2009. Is the Neighbourhood Effect an Economic or an Immigrant Issue? A Study of the Importance of the Childhood Neighbourhood for Future Integration into the Labour Market. *Urban Studies,* 46**,** 583.

Van Ham, M. 2001. Workplace mobility and occupational achievement. *International Journal of Population Geography,* 7**,** 295-306.

Van Ham, M. & Manley, D. 2009. Social housing allocation, choice and neighbourhood ethnic mix in England. *Journal of Housing and the Built Environment,* 24**,** 407-422.

Van Ham, M. & Manley, D. 2010. The effect of neighbourhood housing tenure mix on labour market outcomes: a longitudinal investigation of neighbourhood effects. *Journal of Economic Geography***,** 10, 2, 1-26.

Vertovec, S. 2007. Super-diversity and its implications. *Ethnic and Racial Studies,* 30**,** 1024-1054.

Vervoort, M., Flap, H. & Dagevos, J. 2010. The Ethnic Composition of the Neighbourhood and Ethnic Minorities' Social Contacts: Three Unresolved Issues. *European Sociological Review*. 1, 1-20

Wacquant, L. J. D. 2005. Urban Outcasts: Stigma and Division in the Black American Ghetto and the French Urban Periphery. *In:* Lin, J. & Mele, C. *The urban sociology reader,* New York: Routledge.

Waldfogel, J. 1998. Understanding the" family gap" in pay for women with children. *The Journal of Economic Perspectives,* 12**,** 137-156.

Waldfogel, J. 2004. *Social mobility, life chances, and the early years,* http://eprints.lse.ac.uk/6302/1/Social_Mobility%2C_Life_Chances%2C_and_the_Early_Years.pdf [Date Accessed: 14/09/2011]

Waldinger, R. 1995. The'other side'of embeddedness: a case-study of the interplay of economy and ethnicity. *Ethnic and Racial Studies,* 18**,** 555-555.

Waldinger, R. 1997. Black/immigrant competition re-assessed: New evidence from Los Angeles. *Sociological Perspectives***,** 40, 3, 365-386.

Waldinger, R., Ward, R. & Aldrich, H. 1985. Ethnic business and occupational mobility in advanced societies. *Sociology,* 19**,** 586-597.

Warren, D. 1981. *Helping Networks.*, South Bend: Notre Dame University Press.
Weitoft, G. R., Hjern, A. & Rosén, M. 2004. School's out! Why earlier among children of lone parents? *International Journal of Social Welfare,* 13**,** 134-144.
White, H.C. 1970. *Chains of opportunity: system models of mobility in organisations.* Cambridge MA, Harvard University Press.
Wilkinson, R. & Pickett, K. 2009. *The spirit level: why more equal societies almost always do better,* London, Penguin (Allen Lane).
Williams, D. R. & Collins, C. 2001. Racial residential segregation: a fundamental cause of racial disparities in health. *Public Health Reports,* 116**,** 404-416.
Williams, R. L. 2000. A note on robust variance estimation for cluster-correlated data. *Biometrics***,** 56, 2, 645-646.
Wilson, J. Q. & Kelling, G.L. 2003. Broken windows: The police and neighborhood safety. *In:* McLauglin, E. Muncie, J. & Hughes, G. *Criminological perspectives: essential readings***,** London, Sage. p.29-38.
Wilson, K. & Portes, A. 1980. Immigrant enclaves: An analysis of the labor market experiences of Cubans in Miami. *American journal of sociology,* 86**,** 295-319.
Wilson, W. J. 1987. *The Truly Disadvantaged: The Inner City, the Underclass, and Public Policy,* Chicago: University of Chicago Press.
Wilson, W. J. 1999. When work disappears: new implications for race and urban poverty in the global economy. *Ethnic and Racial Studies,* 22**,** 479-499.
Winship, C. & Morgan, S. L. 1999. The estimation of causal effects from observational data. *Annual Review of Sociology,* 25**,** 659-706.
Wirth, L. 1928. *The Ghetto,* Chicago: University of Chicago Press.
Wong, D. 1997. Spatial dependency of segregation indices. *Canadian Geographer/Le Géographe Canadien,* 41**,** 128-136.
Wong, D. W. S. 1993. Spatial indices of segregation. *Urban Studies,* 30**,** 557-572.
Yoon, I. J. 1995. The growth of Korean immigrant entrepreneurship in Chicago. *Ethnic and Racial Studies,* 18**,** 315-315.
Zhou, M. 1997. Segmented assimilation: Issues, controversies, and recent research on the new second generation. *International Migration Review***,** 31, 975-1008.
Zhou, M. 1998. Beyond ethnic enclaves: Location strategies of Chinese producer service firms in Los Angeles. *Economic geography***,** 74(3), 228-251.
Zhou, M. 2005. Ethnicity as social capital: community-based institutions and emboddied networks of social relations. *In:* Loury, G. C., Modood, T. & Teles, S. M. (eds.) *Ethnicity, Social Mobility and Public Policy: Comparing the US and UK.* Cambridge: Cambridge University Press. p.131-159.
Zhou, M. 2007. Revisiting Ethnic Entrepreneurship: Convergencies, Controversies, and Conceptual Advancements. *International Migration Review.* 38(3), 1040-1074.